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PHYSICAL THERAPY IN DERMATOLOGY: A BRIEF GENERAL OUTLINE

CHAIRMAN'S ADDRESS

GEORGE M. MACKEE, M.D.

NEW YORK

The specialty of dermatology has grown increasingly comprehensive during the past three decades. In addition to the clinical skill peculiar to dermatology, the successful practice of the specialty requires a knowledge of the basic medical sciences, practical experience in general medicine and surgery and clinical laboratory methods and a training in physical therapy. Ability to do experimental and laboratory research and ability to apply to clinical problems the various diagnostic and therapeutic methods make the thoroughly trained modern dermatologist more self-reliant than were his predecessors.

Physical therapy has been an important factor in the evolution of practical dermatology. It has helped to broaden the field. For many years physical therapy enabled the dermatologist to obtain therapeutic results that could be obtained in no other way. This statement is also applicable to modern dermatology but to a lesser degree. Increased knowledge relative to the etiology and therapeutic requirements of many dermatoses has made it possible to lean less heavily on the various physical therapeutic methods. This fact is evidence of progress, and with such progress the specialty becomes more comprehensive. Certain aspects of dermatologic physical therapy will become less important in the future, but it seems safe to predict that physical therapy will continue to be of great value in dermatologic practice into the remote future.

While the various physical therapeutic methods are used with skill and excellent judgment by the majority of American dermatologists, they are injudiciously and improperly employed by some. Such conduct is inimical to the best interests of both dermatology and physical therapy. Physicians who are discrediting physical therapy fall into several classes. Some treat cutaneous lesions without much knowledge of either dermatology or physical therapy. Others have received adequate training in physical therapy, but treat cutaneous diseases without dermatologic supervision. The efforts of such physicians frequently produce undesirable results, and from such sources emanate inaccurate and misleading statements. Among the dermatologists are those who attempt physical therapy without adequate training in its application. Naturally the best results cannot be obtained in this manner. There are others who have acquired technical skill but whose training in dermatology and general medicine has not been sufficient for therapeutic resourcefulness. These physicians are likely to use physical therapy as a path of least resistance to the exclusion of conventional therapy. Finally, there are those who have both technical skill and general dermatologic ability, but, being incapable of guidance, they acquire the faculty of accurate judgment only by experience.

Many of these faults can be remedied in time. In the past it has been difficult for dermatologists to acquire suitable training in physical therapy. In many instances their elementary knowledge was obtained from manufacturers of physical therapy apparatus, itinerant lecturers who were not sponsored by altruistic medical bodies, and books that failed to receive recognition by outstanding members of the two specialties.

Many physicians who specialized in general physical therapy in the past were not fitted by education or temperament for the task of placing the specialty on a sound scientific basis. The various physical therapeutic methods were injuriously exploited by these physicians and by manufacturers of physical therapy apparatus. The specialty was in disrepute. It did not offer an attractive field for young physicians of scientific mind. There were, nevertheless, in this field many scientific workers whose accomplishments were epochal, but such advances were not universally recognized until the World War, when physical therapy received a great impetus. Since then the scientific advancement of the specialty has been rapid, and there is less tendency to glance askance at it.

During the past few years several practical steps have been taken for the purpose of enhancing the standing of the specialty, and to safeguard the medical and lay public against undesirable exploitation. The Council on Physical Therapy of the American Medical Association was formed six years ago. This council is gradually separating the good from the bad in physical therapy. Through its educational articles it has provided the medical profession with reliable information regarding physics, biology, chemistry and physiology, as related to physical therapy. These articles also contain an evaluation of clinical results. They have been published in book form by the American Medical Association and are now available to all physicians. The Council on Physical Therapy functions in much the same manner as does its older brother, the Council on Pharmacy and Chemistry. It carefully considers all physical therapy devices submitted to it. Acceptance or rejection is based not only on the usefulness and quality of the device, but on the character of the advertising propaganda. In time both the manufacturer and the physician will realize that approval of a device by the Council means protection for both.

Read before the Section on Dermatology and Syphilology at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 11, 1932.

A comprehensive, authoritative, much-needed practical work on physical therapy for practitioners of general medicine has been prepared and is now in press. While this work is not officially sponsored by the Council, it was inspired by individual members of the Council, most of whom are independent contributors.

American dermatologists have just created an American Board of Dermatology and Syphilology, patterned after similar boards that have done so much for ophthalmology, gynecology and other specialties. The duty of this board will be to certify to the ability, probity and ethics of dermatologists after careful examination. The examination will include, of course, dermatologic physical therapy. It is probable that in time patients will for the most part consult only those dermatologists who have been certified by the board. It is to be hoped that when the time is propitious the members of the specialty of physical therapy will establish a certifying board for their own protection and for the protection of the lay public.

It is still difficult to obtain a comprehensive training in general physical therapy or even in dermatologic physical therapy, especially without visiting several or many medical centers. Every long term postgraduate course in practical dermatology should provide adequate training in dermatologic physical therapy. Such courses will do for the present, but much more is required for the future. In the premedical course it would seem advisable to devote more time to physics in terms of biologic reactions. The medical course might well include at least the fundamentals of physical therapy. The larger hospitals should have a physical therapy department in which the two-year rotating intern should spend several months. A physician who has received this elementary training is prepared to gain the most from postgraduate courses that include physical therapy.

It appears to be the general impression that physical therapy is synonymous with machine therapy—an entirely erroneous opinion. The most important agents in the general field of physical therapy are massage, rehabilitation, vocational therapy, posture, heat, solar radiation and the like. In dermatology it happens that x-rays are important, and they must be produced by electrical machinery. But even here, many natural physical agents are employed. In fact, it is doubtful if dermatologists have realized how heavily they have leaned on natural physical methods for therapeutic results. These agents include massage, posture, elastic stockings, strapping, exercise, rest in the reclining position, the action of moving air on exposed skin, water in the shape of wet dressings and baths, solar radiation, heat, cold, radium and so on.

There is a controversy as to whether the dermatologist should use physical therapy methods or should refer his patients to a physical therapist, roentgenologist, etc. There has been a similar controversy relative to other diagnostic and therapeutic methods—internal medicine, surgery, clinical laboratory work and so on. In private practice, the dermatologist can be as comprehensive and self-reliant as he desires within the scope of his ability. In institutional work it is more difficult to obtain this privilege. In many institutions the department of dermatology is hardly more than a clearing house. As I am an advocate of comprehensive dermatology, it is my contention that the department of dermatology in an institution should be, as far as is practicable, a self-sustained unit. But I do not advocate that this be accomplished by legislation. The director of the department and his staff must be able to use skilfully the many diagnostic and therapeutic methods necessary in dermatology and with them obtain better diagnostic and therapeutic results and do better research work and teaching than can be accomplished by complete institutional centralization or interdepartmental cooperation. When a larger number of dermatologists have demonstrated this comprehensive ability and have developed executive and organizing capacity, it is possible that there will be more self-sustained dermatologic units.

PHYSICAL THERAPEUTIC METHODS USED IN DERMATOLOGY

There are a number of physical methods used therapeutically in dermatologic practice. These consist of radiation, heat, cold, electricity, massage, posture, strapping, baths and wet dressings.

Radiation.—X-Rays: This agent has been of great practical service to the dermatologist. It is still the most efficacious single remedy in the armamentarium of the dermatologist. About eighty dermatoses are more or less amenable to its action. In some instances the roentgen rays constitute the only remedial agent that will cure or control a disease or give relief from distressing symptoms. In most cases the roentgen rays are used only as an adjuvant.

Injuries caused by x-rays and radium are still too common. Most of them are due to poor judgment rather than faulty technic, and they rarely follow irradiation by well trained dermatologists. With good judgment, diligence and modern technic, unfavorable results should be almost negligible.

There have been two valuable additions to roentgen therapy during recent years. One is the establishment of an international unit of quantity known as the roentgen. The other is the development of ionization dosimeters calibrated in roentgen units for use in routine practice. Unless used by those who understand the possibilities and limitations of these dosimeters, serious errors are likely to result, especially with unfiltered radiation, and they do not obviate the necessity for testing technic by the usual visible effects on human skin. In expert hands it is possible to record the dose in effective wavelengths (quality) and in roentgen units (quantity). As yet there is no universal standard for these dosimeters. Various instruments give different results with unfiltered radiation such as is used in the practice of dermatology. Nevertheless, they are extremely useful for the frequent checking of routine technic. My associates have been engaged for some time in a study of these dosimeters as applied to the technic used by American dermatologists. When the investigation is completed, the results will be published.

Grenz Rays: These are x-rays of a wavelength longer than those heretofore used for therapeutic purposes. They average about 2 angstrom units. These long wavelengths are absorbed largely by the epidermis, especially when thickened; therefore, the maximum effect is superficial. With doses ordinarily used in practice the reaction, while apparently severe, is superficial and usually disappears without subsequent sequelae. However, the beam of radiation is heterogeneous and contains some of the shorter wavelengths. With large doses, especially when repeated, sequelae such as atrophy and telangiectasia have been observed. Grenz rays are less hazardous than are x-rays of the usual wavelength, especially when applied to the deeper

tissues. Therefore, they are especially useful for the treatment of diseases such as eczema, psoriasis and lichen planus when situated on the scrotum, scalp and eyelids, and also for the treatment of certain rebellious, circumscribed eruptions in infants and children. Satisfactory results have been obtained with this agent in a number of the dermatoses; but in my opinion, the efficacy of grenz rays is not nearly so great as that of ordinary x-rays. Because of the smallness of the area to which grenz rays can be applied, they are not suitable for the treatment of extensive eruptions.

Radium: In dermatologic practice, radium is used much less frequently than are the roentgen rays. In a given circumscribed cutaneous lesion, approximately the same result can be obtained by the proper application of either agent. There are, of course, exceptions. Beta rays are particularly useful for strawberry marks. Gamma rays have given better results in cavernous angiomas than have x-rays. Radium is more successful in malignant tumors. Radon can be used as implants and for lesions inaccessible to x-rays. But radium is not suitable for extensive lesions and eruptions, and most of the dermatoses seen in routine practice are of this type. The average dermatologist possesses a half-strength glazed radium applicator with which excellent results may be obtained in selected cases. He should, however, realize the limitations of such a small amount of radium and not attempt to cure epidermoid cancer and other equally malignant neoplasms with it, nor should he rent or purchase radon without adequate training in its use.

Ultraviolet Rays: It appears to be the general impression that ultraviolet irradiation is of great value in dermatology. This opinion is based largely on the clinical observations of those who are not dermatologists. Even in dermatology much of the knowledge of the effect of this agent on the various dermatoses is based on the clinical use of heterogeneous radiation without suitable controls. The possibility of spontaneous recovery, coincidence and the effect of air, temperature and visible light have not always been duly considered. There is evidence sufficient to justify the statement that ultraviolet radiation is of value in erysipelas and certain types of cutaneous tuberculosis. It is reasonably well established that ultraviolet rays are useful in adenoma sebaceum and for selected cases of acne vulgaris, pityriasis rosea, psoriasis, telangiectasia and indolent ulcers. There is a difference of opinion relative to the value of ultraviolet radiation in about thirty other dermatoses for which this agent is claimed by some to be therapeutically useful. While admitting occasional good results that appear to be due to ultraviolet radiation, the majority of dermatologists do not consider it to be an important agent in the management of these disorders.

In physics and biology it is an axiom that the effect of irradiation on human tissue is due to that portion of the radiation that is absorbed by the tissue. When employing ultraviolet rays and infra-red radiation, this fact should be kept in mind. While there is a difference of opinion regarding the penetrability of various rays, it is probable that the short wavelengths of the far ultraviolet are absorbed by 0.5 mm. or less of tissue. The longer wavelengths of the near ultraviolet are more penetrating, being absorbed by about 1 mm. of tissue. Visible solar radiation penetrates to a depth of about 5 mm. The short infra-red rays (near infra-red) penetrate to a depth of 20 or 30 mm., while the longer wavelengths of the far infra-red are absorbed by about 3 mm. or less of tissue. From the foregoing statements it is obvious that the far infra-red rays may produce severe burns without effecting the desired therapeutic effect. The maximum bactericidal action of ultraviolet radiation is in the comparatively nonpenetrating short wave range. One might mention many other characteristics, such as the production of erythema, pigmentation, effect on the cutaneous nerves, absorption by the blood, etc., which are characteristic of the various wavelengths. Suffice it to say here, however, that the dermatologist should consider all these features before purchasing ultraviolet and infra-red generators.

The erroneous impression prevails that ultraviolet radiation is harmless. As most dermatologists know, the injudicious use of this agent may cause undesirable systemic reactions; it may be the precipitating cause of lupus erythematosus and herpes simplex. It may change a quiescent inflammatory dermatosis into acute, active eruptions and even dermatitis exfoliativa. Pellagra, hydroa aestivale, sailor's skin, xeroderma pigmentosum and erythema solare perstans are etiologically related to the effect of light. In this connection may be mentioned erythema ab igne, caused by heat, and pernio and other conditions caused by cold.

Light of various colors, orange for instance, has been used in dermatology with results that were not encouraging.

Heat.—Heat therapy is quite widely employed in dermatology by means of conduction, convection, radiation and high-frequency electricity. Originally, heat therapy consisted of the application of heat by hot objects, such as a poultice and hot water. In recent years, radiant heaters have been popular as a source of infra-red radiation. At the moment, medical diathermy is the most popular method of applying heat therapy. In this form of heat therapy, the heat is generated in the tissue instead of being applied to the tissue.

In dermatology, heat therapy is of value for boils in the early stage of evolution. It is at times beneficial for the stasis and congestion accompanying certain chronic inflammatory dermatoses. It may be of some value in the treatment of onychomycosis. Applied as medical diathermy to the spinal region, it is thought by some to be of service in the management of lichen planus and scleroderma. Heat therapy in syphilis applied by means of hot baths, medical diathermy and radiant heaters has not been successful. The short radio waves are penetrating and cause an elevation of body temperature when properly applied. Experimental work is now being conducted with these wavelengths, with results that are at least encouraging.

The actual cautery is not used as much by dermatologists now as in former years, as it has been supplanted to a large extent by surgical diathermy. Heat obtained by focusing the sun's rays is used to some extent for destructive purposes; but the method is not popular.

Cold.—Freezing the skin with ethyl chloride or solid carbon dioxide is successful in some cases of larva migrans. The same method has been used for scabies and dermatophytosis with poor results. Cold compresses are used occasionally to provoke cutaneous reaction in the congested skin in certain chronic dermatoses. Ethyl chloride and solid carbon dioxide are used for the same purpose, especially when the eruption is circumscribed. Solid carbon dioxide is not now so popular as in former years, but it is useful for the destruction of warts, certain nevi and discoid lupus

erythematosus. It is now possible to obtain hard blocks of solid carbon dioxide from the confectioner, who uses it for ice cream cartons.

Electricity.—With the exception of medical and surgical diathermy and electrolysis, electrotherapy is not used much in dermatology. Cataphoresis has thus far been of little value. The application of high-frequency sparks by means of a glass vacuum electrode for the production of hyperemia is used to some extent; but the method is of questionable value. The same statement may be made relative to the use of a negative galvanic current to soften scar tissue.

Electrolysis is a valuable therapeutic method, and should be more universally employed. It is useful for the removal of many small benign lesions, and it is the best available method for the permanent removal of superfluous hair. Dermatologists have neglected this aspect of physical therapy, with the result that many patients are compelled to go to cosmetologists and beauty specialists. Instruction in electrolysis should be included in the curriculum of postgraduate courses in clinical dermatology.

Massage, Posture, Etc.—It seems to be the consensus that massage is useful for scleroderma. It appears to be of some value in cases of hyperplastic scar tissue and perhaps for some of the chronic dermatoses. It is used for various types of alopecia.

Rest in the reclining position is necessary for some acute generalized eruptions. Elevation of congested extremities, the wearing of elastic stockings, prescribed exercise and rest and strapping are of value in cases of dermatitis hemostatica and indolent ulcers. Balneotherapy consisting of baths of various kinds, including the permanent bath for pemphigus, is used by nearly all dermatologists. In fact, if balneotherapy includes wet dressings and compresses and water as a vehicle for the application of heat, cold and various chemicals, it is indeed a widely used method.

Diathermy.—Medical diathermy signifies the application of a bipolar high-frequency current for medical purposes. The current is obtained from the primary winding of the high-frequency transformer. This used to be called the d'Arsonval or solenoid current. Its use in dermatology is limited.

Surgical diathermy is the application of a high-frequency current for the purpose of destroying tissue. In dermatology there are three types of high-frequency currents that are used for this purpose. The cutting current is obtained from the primary winding of the high-frequency transformer or inductance. This may be monopolar or bipolar, depending on the construction of the apparatus and the number of turns of the primary winding in the current. It may be damped or undamped. The voltage is low as compared with the other currents. The current cuts like a knife, and there is sufficient coagulation of tissue to seal the lymphatics and the small blood vessels. The electrode is usually a needle or a fine wire loop.

The coagulating current is obtained from the same source and it, too, may be monopolar or bipolar. The active electrode is usually a small needle. This current coagulates tissue to a distance of several or many millimeters in all directions from the needle electrode.

The desiccating current is monopolar and is obtained from the secondary of the high frequency transformer. This was formerly called the resonator or Oudin current, and its application was known as fulguration. The current has a comparatively high voltage and low milliamperage. This current dehydrates, desiccates or mummifies the tissue.

The various forms of surgical diathermy are employed for a variety of cutaneous conditions. With the desiccating current it is possible to dehydrate accurately a tiny lesion of the skin or to destroy a large superficial lesion. Electrodesiccation is used mostly for the destruction of certain nevi, warts, small areas of leukoplakia and many small, superficial benign lesions. Electrocoagulation is used mostly for the destruction of malignant neoplasms. The cutting current is employed to excise both benign and malignant new growths either alone or combined with electrocoagulation, radium and roentgen rays. It is also used with a loop electrode to remove the elevated portion of a large, thick keloid, after which roentgen rays are applied to prevent a recurrence. In selected cases of malignant neoplasms surgical diathermy appears to be superior to scalpel surgery because it seals the lymphatics and blood vessels and because it can be used in locations inaccessible to the scalpel.

Physical measures used for surgical purposes may be included under the general category of physical therapy, but they also belong to surgery. All surgical operations, whether performed with the scalpel or with some physical device, require for uniform success a knowledge of the principles of surgery.

RELATION BETWEEN GASTRIC AND RENAL DISEASES

CLINICAL OBSERVATIONS

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Gastro-intestinal symptoms occurring during the course of renal disease are not uncommon. These may be so pronounced that unless an extremely careful investigation is made, erroneous conclusions may easily be drawn, the primary condition remaining entirely unrecognized. This is more especially observed in the incipient stages of certain chronic renal diseases as well as in persons in the later periods of life, complaining of indigestion with urinary symptoms of a comparatively unimportant type, in whom the blood chemistry and functional renal tests reveal the presence of definite renal lesions.

On the other hand, attention has frequently been called to the fact that digestive diseases in themselves may likewise primarily produce disturbances of renal function.

The intimate relation between the kidneys and digestive organs will, to a great extent, easily account for many of these manifestations. Owing to beginning decompensation in the circulatory system, an early enlargement of the liver as well as congestion of other abdominal organs is produced as the result of portal stasis, and in consequence a change in the gastric functions occurs, resulting in the production of digestive symptoms of a more or less severe type. A somewhat similar relation between the kidneys and digestive

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organs through the nerve supply is also recognized. Both are supplied by the vagus and sympathetic nerves, and any disturbance of the kidneys may be reflected through these paths to the gastro-intestinal tract, causing an interference with its functions. The upper portion of the digestive organs receives its sympathetic nerve supply from the splanchnic nerves, from which fibers are distributed to the celiac plexus and ganglion, aorticorenal ganglion and renal plexus and through the celiac ganglion to the superior mesenteric plexus and inferior mesenteric plexus. This intimate relationship may therefore also account for certain digestive symptoms so commonly arising as the result of renal disease. Likewise, as the result, on the one hand, of the absorption of toxic products due to disease of the kidneys or digestive tract there may follow, on the other hand, disturbances of the functions of the gastro-intestinal tract or of the kidneys.

In addition, the anatomic relationship between the kidneys and the abdominal viscera may have an important bearing in this connection. The relation of the anterior surface of the kidneys to the digestive organs varies somewhat on the right from that on the left side, the right being lower than the left, the left, however, being longer. The second portion of the duodenum is in direct contact with the hilus of the right kidney, while the hepatic flexure of the colon is in contact with the lower pole, and at times a part of the small bowel passes over the lower pole. The left kidney, in addition to being in close contact with the spleen, pancreas and suprarenal gland, is also closely related to the left side of the stomach. The descending colon not infrequently also passes over the lower pole of the left kidney, and the jejunum is in relation with its anterior surface.

The pathologic changes occurring in the mucous membrane of the stomach and intestine vary greatly with the character of the renal lesion. In the acute and subacute forms of nephritis with edema or those of the hemorrhagic type including the acute and subacute nephroses, the mucous membrane of the stomach is covered with mucus, while the glands of the stomach and intestines are swollen, irregular and filled with granular disintegrated cells and mucus. In the chronic forms of nephritis with edema, however, the mucous membrane assumes a grayish color and in some areas is intensely reddened. It is swollen, thickened and covered with an adherent tenacious mucus, which is cloudy and occasionally blood-stained. Ecchymotic patches and small hemorrhagic erosions may also be observed. The pyloric area is more markedly involved, though the inflammation may extend throughout the entire mucous membrane. The submucous and muscular coats are at times thickened. The glands of the stomach and intestine are enlarged, sacculated and dilated, the tubules being distorted in many areas, and no longer present their characteristic appearance. The glandular cells become cloudy, granular and infiltrated and finally undergo fatty degeneration. The principal and parietal cells cannot always be differentiated at this stage. Abundant small cell infiltration separates the glands, and extension of connective tissue may be noted passing from the mucosa between the glands. Mucoid transformation of the cells of the tubules is a prominent change, which may extend into the fundus of the glands.

In the chronic types without edema but with hypertension, known ordinarily as chronic interstitial nephritis, there is present usually an inflammatory increase in the interglandular connective tissue of the stomach and intestine, the mucous membrane undergoing a fibrous thickening, especially noted in the intima, resulting finally in the production of an atrophic gastritis. Not infrequently minute ecchymotic areas are observed in the mucosa of the stomach, or superficial ulcers or erosions in both the stomach and the intestine, which may gradually increase in extent. Sloughing ulcers have been observed in the large bowel associated with profuse diarrhea, often of serious form. After a considerable length of time, the inflammatory process may lead to a total destruction of glandular layers, the coats of the stomach undergoing thickening and atrophy and the mucous membrane and glands being replaced by round cells and connective tissue.

As a result of enlargement of the prostate, stricture of the ureter, kidney stone, movable kidney with or without the production of Dietl's crises, chronic infections, pyelitis or pyelonephritis, changes may take place in the stomach and intestine similar to those already described.

In the study of the interrelation of the disturbances of the digestive organs with those of the kidneys, the two following groups will be considered: (1) digestive symptoms occurring in renal disease, and (2) renal disease of gastro-intestinal origin.

DIGESTIVE SYMPTOMS OCCURRING IN RENAL DISEASE

Owing in part to reflex causes, but in a far greater degree to absorption of toxic products which are the result of renal disease, dyspeptic symptoms of more or less severe forms are often found to supervene. Whether this toxic substance is urea, as Elwyn[1] has recently again maintained, or a combination of this with other products is of minor importance in this connection. At first the toxin is accumulated to a slight degree in the blood and, being excreted in small amounts in the gastro-intestinal tract, gives rise to minor digestive upsets, but sooner or later, as the accumulation becomes more excessive, it is excreted to a far greater degree, giving rise to grave symptoms due to a consequent gastro-enteritis or ulceration.

When the toxic substance is excreted into the mouth through the salivary glands, it is decomposed with the formation of ammonia and produces the odor of urine in the breath. This causes a highly disagreeable taste in the mouth and a coated tongue. It is excreted through the gastric glands and then produces an irritation of the mucous membrane with symptoms of nausea, vomiting and anorexia. These symptoms of disturbed digestion in chronic forms of renal disease are often extremely pronounced and frequently overshadow those directly associated with the renal lesion. They necessarily vary according to the character and degree of involvement of the stomach and intestine. The symptoms characteristically observed are loss of appetite, nausea, vomiting, constipation or diarrhea, flatulence and pain following meals. Loss of appetite occurs as an extremely early symptom and may appear before the renal lesion is even suspected. It is sooner or later followed by vomiting after meals and not infrequently in the morning on a fasting stomach. In these instances nausea occurs on awakening and is followed by extreme retching and vomiting of mucus, which is alkaline in reaction, together with an admixture of bile and salivary secretion. Vomiting may follow immediately or occur several hours after meals; when appearing late, the

1. Elwyn: Am. J. M. Sc. **179**: 149, 1930.

vomitus contains undigested food remains with an admixture of mucus. In the milder types vomiting may be absent, though gastric distress, anorexia and a burning sensation in the abdomen are usually noted. Constipation, which is usually present at the onset, is sooner or later replaced by diarrhea with loss of flesh and anemia. Examination of the blood chemistry at this stage usually reveals a high nitrogen content and not infrequently an increase in creatinine. With improvement in the renal disease the digestive symptoms likewise show evidence of abatement.

As a complication of nephritis, uremia may occur. The symptoms referable to the digestive tract are then largely due to toxic manifestations. The onset of uremia is accompanied by excessive nausea, vomiting, headaches and drowsiness. Food is badly tolerated and usually promptly rejected in an undigested form together with an admixture of mucus and bile. The breath becomes strongly ammoniacal. Obstinate constipation may alternate with excessive diarrhea. The diarrhea is frequently accompanied by pain, and the stools are occasionally blood stained. Urea has been observed in the vomitus, and when the kidneys do not carry off the toxic substances sufficiently, the excess will be eliminated through the gastro-intestinal tract. The stomach and intestine thus assist in this manner in the elimination of toxic products from the blood when these cannot be eliminated through the usual channels. The vomiting and diarrhea occurring in uremia are therefore, in a measure, compensatory mechanisms. Auguste [2] confirmed this observation in five patients affected with chronic nephritis with evidences of uremia and a high nitrogen retention in the blood, in whom a favorable outcome was brought about through duodenal lavage. Although death ensued within several weeks in all his patients, relief from all symptoms, that is, from uremia, headaches and loss of vision, was observed. Hugh Young [3] likewise called attention to the value of the duodenal tube as a means of combating the nausea and vomiting in uremic conditions.

In the acute forms of nephritis the onset may be of a fulminating character, associated with headaches, malaise, nausea and vomiting, but these symptoms, including edema, usually develop gradually and finally become prominent.

In the chronic forms of nephritis with edema there is usually a secondary anemia, and the edema may include the gastro-intestinal tract, giving rise to fulness, distention, gas, discomfort following meals, nausea, persistent vomiting or constipation, diarrhea and loss of appetite. In this condition there are also present malaise, loss of strength and headaches, the blood pressure remaining normal or even low.

In the chronic forms of nephritis with hypertension or chronic interstitial nephritis, the onset is insidious, the symptoms occurring rather late. The early signs are largely those of fatigue and loss of strength and often weight, followed by headaches, dizziness, loss of appetite, fulness, distention, flatulence, dyspnea and finally symptoms of toxemia, manifested in the form of drowsiness and attacks of nausea and vomiting which become more and more frequent and persistent. Occasionally, abdominal pain, which may become severe and even suggest disease of the gallbladder, appears.

In renal disease associated with infection in the form of pyelitis or chronic pyelonephritis, digestive symptoms occur in the form of anorexia, nausea and vomiting, with pain and tenderness in the region of the kidneys and in the abdomen, not infrequently associated with chills and a rise in temperature. The pain may be localized in the loin, but frequently radiates to the right side of the abdomen.

The gastro-intestinal symptoms occurring as the result of renal ptosis may be insignificant or pronounced. This condition is usually associated with a visceroptosis, and many symptoms may be due to this disease. The most prominent are nausea, vomiting, abdominal pain, loss of weight, weakness, abdominal tenderness and a dragging sensation in the abdomen when the patient is in the erect posture. At times, intense colicky pains associated with Dietl's crises are manifested. In this condition, enlargement of the kidney is noted, and this organ, on palpation, is found to be extremely painful. As the urinary stasis becomes more pronounced, hydronephrosis, pyelitis or pyelonephritis may result, with chills, fever, nausea, vomiting and other digestive symptoms due to pressure.

The digestive symptoms occurring in nephrolithiasis and as the result of ureteral calculus or stricture are usually not pronounced or characteristic unless renal colic is produced. The symptoms ordinarily noted are nausea and vomiting, which may be periodic and persistent, epigastric pain and pressure, abdominal and lumbar pain, eructations, heartburn and constipation. The sudden onset of intense pain in the lumbar region, associated with weakness, nausea, vomiting and signs of shock, together with the urinary findings, points clearly to the presence of renal colic. However, when the symptoms relating to the urinary tract are atypical, the digestive symptoms may become so pronounced as to give rise to the picture of a primary dyspeptic disturbance. At times the constipation associated with this condition may become intense and be accompanied with such extreme abdominal distention as to give rise to the erroneous diagnosis of intestinal obstruction or an acute peritonitis. Cystoscopic and roentgen examinations will ordinarily aid in establishing the correct diagnosis.

In other instances the gastro-intestinal symptoms may be of a less severe but more chronic type, consisting of nausea, abdominal discomfort, pain, eructations and occasional vomiting, while the urinary manifestations may again be so mild in character as to be entirely overlooked. A thorough examination including a urinary investigation will usually point to the correct diagnosis.

Occasionally a stone in the pelvis of the kidney will produce symptoms resembling duodenal ulcer or cholelithiasis, giving rise to pain several hours after meals with signs of hyperacidity or reflex colicky pain in the upper part of the abdomen. Here, too, a thorough investigation will aid in establishing the diagnosis.

In those instances associated with prostatic obstruction, the digestion not infrequently becomes markedly impaired, and nausea, vomiting, eructation, abdominal pain and emaciation become so prominent that the presence of carcinoma of the stomach may be suspected. There are often present marked abdominal distention, oppression, dyspnea, flatulence and diarrhea with intense thirst. The tongue, under these considerations, becomes reddened, dry and furred, and the mucous membrane of the mouth presents a glazed appearance.

The Gastric Secretion in Renal Disease.—Authorities are by no means in accord regarding the changes occurring in the gastric secretion in chronic nephritis.

2. Auguste: Bull. et mém. Soc. méd. d. hôp. de Paris **53**: 1313, 1929.
3. Young, H. H.: Use of Retained or Inlying Duodenal-Tube in Treatment of Gastro-Intestinal Complications in Renal Disease, J. A. M. A. **94**: 1830 (June 7) 1930.

Van Valzah and Nisbet [4] considered hyperacidity common in the early period of the disease with the development of a low acidity as the disease progresses. Biernaki [5] and Jones [6] pointed out that the gastric secretion is greatly diminished, while Zipkin [7] and Krakow [8] found hyperacidity more frequent.

According to our observations, in the early stages of chronic renal disease before the occurrence of edema or uremia slight changes are noted in the gastric secretion; however, hyperacidity is occasionally observed. At a later period following the onset of renal insufficiency there is a reduction in the gastric secretion due largely to a resulting secondary chronic gastritis. During the acute exacerbations of chronic nephritis, hypoacidity or anacidity not uncommonly occur and this is frequently replaced by a normal acidity or even hyperacidity during the period when renal sufficiency is again restored. Free hydrochloric acid is also known to diminish during uremic attacks.

RENAL DISEASE OF GASTRO-INTESTINAL ORIGIN

Occasionally as the result of pyloric or high intestinal obstruction renal disease is known to occur. In this condition tetany may appear and the signs of severe toxemia may be manifested. Brown, Eusterman, Hartman and Rowntree [9] have especially called attention to the renal disturbances noted in many of these cases. The evidence of the toxic injury to the kidneys is demonstrated, according to these observers, by the albuminuria and cylindruria, the functional impairment of the kidneys with increased nonprotein nitrogen, creatinine and urea in the blood and a definite diminution of the phenolsulphonphthalein output. In addition, the clinical and pathologic picture points definitely to a nephritis. As a result of the pyloric or upper intestinal obstruction a toxemia is produced, often leading to an alkalosis of a more or less severe type. Brown and his co-workers described eleven cases of this character exhibiting duodenal intoxication with renal disturbance. The gastric symptoms were mainly nausea and vomiting. Headaches were common. In the chronically obstructed group intermittent crises occurred at intervals of a few days with vomiting of excessive quantities of serous fluids. With the emptying of the stomach great relief was obtained for a time. Not uncommonly in the more pronounced forms, tetany or tetany-like symptoms develop. Due to violent vomiting and the resultant depletion of fluid, symptoms of shock are produced with a fall in blood pressure, weakness, an apparent increase in hemoglobin and finally delirium and cerebral excitement. The urinary secretion is diminished and albumin, casts and even red blood cells are observed. With the development of the toxemia, the blood chemistry reveals, as has already been noted, marked changes. There is a decrease in the blood chlorides and an increase in the carbon dioxide-combining power of the blood, with an increase in the nonprotein nitrogen, urea and creatinine. The phenolsulphonphthalein test reveals a marked disturbance of renal function. The renal lesion, according to these observers, presents the clinical picture of a degenerative type often noted in experimental nephritis. An interesting fact, however, is that edema, an increase in blood pressure and retinal hemorrhages do not occur. In six cases studied at autopsy, according to Brown and his co-workers, marked evidences of toxic nephritis were presented. The tubular epithelium showed degenerative changes, and granular and fatty changes were also commonly observed. Marked dilatation of the stomach and duodenum was also noted at autopsy. Pfeiffer [10] has more recently called attention to the alkalosis due to pyloric stenosis associated with the characteristic changes in the blood chemistry as well as urinary symptoms similar to those observed in acute glomerulonephritis.

Tileston and Comfort [11] also observed the great increase in the nonprotein nitrogen and urea of the blood in acute intestinal obstruction, and considered this due to increased destruction of tissue. They noted that the retention of nitrogen disappears following operation for relief of the obstruction and that the retention is associated with indicanuria.

Cooke, Rodenbaugh and Whipple [12] observed an increase in nonprotein nitrogen in the blood but without renal lesions in their first experiments on animals in high intestinal obstruction. In a subsequent series of experiments, however, McQuarrie and Whipple [13] proved conclusively that renal function was greatly impaired in this condition.

Hardt and Rivers [14] called attention to a group of patients undergoing alkaline medication for peptic ulcer in whom toxic symptoms were produced. These patients presented an albuminuria, cylindruria and a rise in blood urea and alkali reserve. There was no evidence, however, of renal disturbance except in two instances in which an acute exacerbation of a chronic nephritis was observed at autopsy.

The cases reported by Tucker [15] are of especial interest. In eight instances, in which uremia developed following gastro-enterostomy, this condition appeared to be the immediate cause of death. In four of these cases an acute process was revealed, developing on a previously existing chronic nephritis.

Zeman, Friedman and Mann [16] studied four cases of pyloric obstruction with special reference to the microscopic changes produced in the kidneys. Of the four, two presented clinically the symptoms of tetany of gastric origin. The renal changes at autopsy in all four revealed identical conditions. There were degenerative changes noted in the cells lining the spiral and straight portions of the first convoluted tubules. In many sections these cells were found to be necrotic and infiltrated with granules staining blue with hematoxylin, which was interpreted as due to calcium salts. Similar changes are frequently observed in mercuric poisoning. The kidney changes are of a degenerative type and are best described, according to these observers, as a toxic degenerative nephrosis. They also called attention to the fact that gastric tetany was first described by Nazzari in 1904, and suggested that the primary factor is a pyloric or high duodenal obstruction with persistent vomiting and as a result tetany and renal changes are produced. Zeman and his co-workers found that in thirteen cats in which the

4. Van Valzah and Nisbet: The Diseases of the Stomach, Philadelphia, W. B. Saunders Company, 1898, p. 639.
5. Biernaki: Berl. klin. Wchnschr. **28**: 611 and 652, 1891.
6. Jones: New York M. J. **61**: 76, 1895.
7. Zipkin: Inaug. Diss., Wurzburg, 1894.
8. Krakow: Inaug. Diss., St. Petersburg, 1891.
9. Brown, G. E.; Eusterman, G. B.; Hartman, H. R., and Rowntree, L. G.: Toxic Nephritis in Pyloric and Duodenal Obstruction, Arch. Int. Med. **32**: 425 (Sept.) 1923.
10. Pfeiffer: Ann. Surg. **92**: 900, 1930.
11. Tileston, W., and Comfort, C. W., Jr.; The Total Nonprotein Nitrogen and the Urea of the Blood in Health and in Disease as Estimated by Folin's Methods, Arch. Int. Med. **14**: 620 (Nov.) 1914.
12. Cooke, Rodenbaugh and Whipple: J. Exper. Med. **23**: 717, 1916.
13. McQuarrie and Whipple: J. Exper. Med. **29**: 421, 1919.
14. Hardt, L. L., and Rivers, A. B.: Toxic Manifestations Following the Alkaline Treatment of Peptic Ulcer, Arch. Int. Med. **31**: 171 (Feb.) 1923.
15. Tucker: Wisconsin M. J. **20**: 528, 1921.
16. Zeman, Friedman and Mann: Proc. New York Path. Soc. **24**: 41, 1924.

pylorus was tied off, it was possible to produce lesions in all respects similar to those described in human beings. The early changes consisted in necrosis of the kidney cells as described, with calcification within forty-eight hours following operation. Grossly, the kidneys showed cloudy swelling and congestion, especially in the pyramids. Microscopically there was a diffuse tubular degeneration with necrosis and calcification occurring in the spiral and terminal parts of the convoluted tubules and later in the tubules adjacent to the glomeruli. The clinical data in the animals revealed a rise in the carbon dioxide-combining power of the plasma with lowered blood plasma chlorides and an increase in the nonprotein nitrogen of the blood.

The pathologic renal changes are in accord with the clinical observations and laboratory data. The rôle of the kidney is important in this connection since the renal lesion appears as an outstanding pathologic change in pyloric and high intestinal obstruction.

Crohn [17] described a case of prolonged and severe atony of the stomach in which gastric retention continued notwithstanding a gastro-enterostomy. Death occurred with symptoms of decreased urinary function, showing albumin and casts in the urine, and with stupor and convulsive seizures in the extremities. These symptoms could be interpreted at autopsy only in the light of a degenerative toxic nephritis.

Bennett [18] also drew attention to the close association between gastric and renal disease, and presented the following table in evidence:

Progressive Renal Disease	Nonmalignant Pyloric Obstruction
1. Acid accumulation in the blood	Acid loss from vomiting
2. Acidosis	Alkalosis
3. Phosphorus retention	Chloride loss
4. Nitrogen retention	Nitrogen retention
5. Calcium reduction	Calcium reduction
6. Twitching and convulsions	Tetany

He concluded that not only may renal disturbances produce marked alteration in the blood chemistry, but the chemical changes in the blood due to high duodenal and pyloric obstruction may occasion extensive renal lesions.

While severe types of toxemia may follow partial or complete pyloric or duodenal obstruction, resulting finally in renal damage of more or less severity, a similar condition due to intestinal stasis may likewise occur, though perhaps to a far lesser degree. This is especially noted in persons in the later years of life who have been subjects of persistent gastro-intestinal toxemia extending over a period of many years and in whom the gradual but definite onset of this condition is observed. Toxemias of these types are due at times to intestinal stasis. They have been noted in duodenal stasis in which gastric retention and profuse bilious vomiting occur. The profound toxemia in these instances may even be associated with marked dehydration, shock and occasionally attacks of tetany. In this state there are present an increase in the nonprotein nitrogen and urea of the blood, a reduction in the chlorides and a rise in the carbon dioxide combining power of the blood plasma with an alkalosis.

17. Crohn: Affections of the Stomach, Philadelphia, W. B. Saunders Company, 1929, p. 660.

18. Bennett: Nephritis: Its Problems and Treatment, New York, Oxford University Press, 1929, p. 19.

Landau, Jochweds and Pekielis [19] have reported a case of this type due to carcinoma in which this complication occurred and in which the changes just referred to were observed. But a similar condition may likewise arise, though to a lesser degree, in intestinal stasis, whether ileac or colonic. In such instances, associated with long-continued habitual constipation of an aggravated type and the usual symptoms of fatigue, depression, headache, anemia, anorexia, nausea and so-called bilious attacks, one frequently finds a large excess of indican in the urine. Traces of albumin and the presence of hyaline casts are noted and finally in increasing amounts with granular casts and indican. In certain of these cases a rise in the nonprotein nitrogen and urea in the blood is gradually manifested and the renal function becomes impaired. At this period, hypertension often associated with cardiovascular disease becomes definitely established.

In this connection it is interesting to note that Redewill, Potter and Garrison [20] have recently called attention to the close relationship existing between the gastro-intestinal and genito-urinary tract and the importance of the colon as the site of focal infections in the causation of such diseases as chronic pyelitis, cystitis and prostatitis.

While absolute proof is still lacking that renal disease is definitely due to the toxic products eliminated through the digestive tract, the constant presence of large amounts of indican in the urine and the gradual onset of the renal disease following many years of digestive disturbances are at least suggestive in some instances of this relationship. As a further evidence in this direction is the fact that following the disappearance of the intestinal stasis under appropriate treatment, the urinary disturbance will not uncommonly be overcome.

Finally, it is interesting to note that certain gastric diseases modify the urinary composition. In gastric retention due to pyloric stenosis the quantity of urine excreted is markedly diminished and albuminuria may likewise occur. It is questionable, however, whether any marked damage is inflicted on the kidneys following the milder, though even prolonged, forms of gastro-intestinal disturbance.

SUMMARY

Attention is directed to the intimate relationship between disturbances of the kidneys and those of the gastro-intestinal tract. This is accounted for partly by the anatomic relations between these systems and their nerve and blood supply, as well as in a large degree by developing toxemias. The various lesions occurring in the digestive tract as the result of renal disease are considered. Early symptoms noted in connection with the digestive tract in renal disease are not uncommon. These are extremely pronounced at times and frequently overshadow those directly associated with the renal lesion. These symptoms should be constantly held in mind, inasmuch as relief can often be obtained under these conditions only by direct treatment of the primary disease. The gastro-intestinal symptoms occurring in uremia are toxic in nature; there appears to be an attempt in the diarrhea and vomiting to eliminate the toxin, which may be considered in a way as a compensatory measure.

19. Landau, Jochweds and Pekielis: Arch. d. mal. de l'app. digestif **18**: 33, 1928.

20. Redewill, F. H.; Potter, J. E., and Garrison, H. A.: Colon as Site of Infection in Chronic Pyelitis, Cystitis and Prostatitis, J. A. M. A. **94**: 688 (March 8) 1930.

On the other hand, as the result of pyloric or high intestinal obstruction, renal disease may be produced associated with profound toxemia. It is also quite possible that prolonged duodenal, ileac and colonic stasis may likewise give rise to pronounced forms of toxemia, finally leading to renal involvement. The colon may also act as a focus of infection in the production of certain urinary lesions.

In the study of renal and digestive disease it is therefore of importance to bear in mind the reciprocal relation of these organs to one another in order to arrive at correct conclusions in diagnosis and consequently in treatment.

ABSTRACT OF DISCUSSION

DR. SIDNEY K. SIMON, New Orleans: The authors have demonstrated a point that gastro-enterologists are prone to lay little stress on and that is the point of all inclusiveness of diseases of the intestinal tract, and the causes and the relationships they bear through reflex and toxic sources to other organs of the body. The stomach in a way may be considered as the alarm clock of the entire body, sounding an alarm when pathologic distress exists in neighboring and in many instances in far-removed structures. Such instances are matters of common knowledge, but the point has not been sufficiently stressed in reference to the genito-urinary system. This is notably true in uremia and the frequently participating digestive disturbances that many times arise before the renal phenomena appear.

DR. SEALE HARRIS, Birmingham, Ala.: The general practitioner first sees the patient with early manifestations of failing kidney function; and in such cases if he recognizes that the anorexia, vague abdominal discomfort, nausea, vomiting and diarrhea, and sometimes obstinate constipation, are due to metabolic changes of renal origin, he can institute treatment that may prevent irreparable damage to the kidneys and myocardium. If he fails to make the correct diagnosis and treats the symptoms as of primary gastro-intestinal origin, allowing his patient to become dehydrated and toxic from retained urinary products, his trusting patron may be doomed to an early death from uremia or a damaged myocardium. In any case of nausea and vomiting, with either constipation or diarrhea, in a man or woman past 50, in which such symptoms cannot be accounted for otherwise, it is safest to consider that they are due to renal dysfunction and treat the patient accordingly. The prompt administration of sufficient fluids and soluble carbohydrates in such cases saves lives. If the patient cannot retain water and soluble carbohydrates such as coffee or tea, orange juice, lemonade, orangeade, dextrose (corn sugar) or glucose (corn syrup) solutions, at least three or four quarts of fluids a day, dextrose solutions may be given by hypodermoclysis (5 per cent solution) or intravenously (10 per cent solution). If there is constipation, plain water may be given by proctoclysis after a cleansing enema. It is futile and even harmful to give glucose or other carbohydrates by rectum. In cases of suspected renal damage, salt solutions should be given sparingly, not more than 1,000 cc. a day. While sufficient fluids should be given, it is unsafe to give more than 4,000 cc. a day, because of the danger of what Rowntree calls "water intoxication," or of overworking damaged kidneys, or of overwhelming a toxic and failing myocardium. Of course, it is desirable to make renal function tests (phenolsulphonphthalein), and chemical studies of the blood (nonprotein nitrogen, urea, creatinine, carbon dioxide combining power of blood plasma, and so on) in such cases to determine the functional capacity of the kidneys and the character and degree of the toxemia (uremia, azotemia, acidosis or alkalosis); but the general practitioner, who may not have laboratory facilities available, should play safe by treating the patient with gastro-intestinal symptoms of suspected renal origin as if he were positive of the diagnosis of primary kidney disease. In men past 50 whose first symptoms are anorexia, nausea, vomiting and diarrhea or constipation, with or without fever, unless known to be due to food infection or other demonstrable causes, an examination of the prostate or a catheterization for residual urine may clear up the diagnosis.

DR. A. L. LEVIN, New Orleans: Postoperative biliary vomiting is of frequent occurrence and is often a serious complication. This problem has been studied carefully by Dr. Eusterman, in collaboration with Drs. Brown, Hartman and Rowntree. Their studies of the subject have been described in the 1923 volume of the Collected Papers of the Mayo Clinic. The conclusion was that toxic nephritis soon develops if the postoperative biliary regurgitation is not corrected early. One must bear in mind that postoperative biliary regurgitation occurs not only in laparotomy cases but also in cases in which the abdomen is not opened. Fetor oris is another unexplained phenomenon. Dr. Alvarez explains it on the basis of reverse peristalsis. It has been demonstrated that urea is quite often eliminated by the stomach; in cases of kidney insufficiency, it is probable that an excessive amount of eliminated urea will produce fetor oris. The authors stress the close relationship between the internist and the gastro-enterologist. I would suggest the inclusion of the surgeon in this partnership.

DR. JULIUS FRIEDENWALD, Baltimore: In a study of digestive diseases one is too likely to forget that there is an interrelationship between digestive disturbances and other organs, and it was our object in this paper to direct attention to the reciprocal relationship that exists between various systems and in this instance between the digestive and renal systems.

THROMBO-ANGIITIS OBLITERANS

RESULTS OF SYMPATHECTOMY

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Thrombo-angiitis obliterans is a peripheral vascular disease, characterized by thrombosis of the peripheral arteries and veins, resulting in intermittent claudication, localized pain, edema, ulceration and gangrene of digits, and in the later stages of the disease,[1] in massive gangrene. Besides the process of thrombosis, vasomotor spasm of principal unoccluded and collateral arteries is found which aggravates the symptoms produced by the occlusion of arteries and veins, and which, if relieved, ameliorates the symptoms, preserves digits and extremities and aids materially in rehabilitating the patient. Patients with mild symptoms may not require special treatment, whereas those with moderately advanced symptoms may respond to medical care. However, since these attacks are prone to recur in the affected extremity with extension to the opposite extremity, methods of treatment with more permanent effects have been sought. Our experiences with sympathetic ganglionectomy and trunk resection in the treatment of Raynaud's disease due to vasomotor spasm of peripheral arteries led us to employ the same surgical procedure in thrombo-angiitis obliterans, when vasomotor spasm was a contributing factor in the production of symptoms, and we herewith submit a study of 100 cases in which bilateral operations have been performed at the Mayo Clinic from 1925 to 1932.

ETIOLOGY

The specific etiology is still undetermined. Some investigators hold that the disease is due to specific infection or to toxic agents. It is most common among young men (98 per cent) who are engaged in active

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1. Adson, A. W., and Brown, G. E.: The Treatment of Raynaud's Disease by Resection of the Upper Thoracic and Lumbar Sympathetic Ganglia and Trunks, Surg., Gynec. & Obst. **48**: 577 (May) 1929; Physiologic Effects of Thoracic and of Lumbar Sympathetic Ganglionectomy or Section of the Trunk, Arch. Neurol. & Psychiat. **22**: 323 (Aug.) 1929.

exercise, but it also occurs among men occupying sedentary positions, and occasionally it has occurred among young women. It is supposed to be more prevalent in the Hebrew race, but it has been found to develop in all races. Some investigators believe that the use of tobacco, especially if in excess, is a causative factor. The exposure to cold has a deleterious effect on the patients.

PATHOLOGY

The gross characteristics of the vessels affected by thrombo-angiitis obliterans depend on the stage of the process in which they are examined. If an affected vessel is opened in the longitudinal direction, there may be some noticeable thickening of the wall, even in the absence of occlusion of the lumen. If the process is advanced, there is extensive induration of the adventitia and the surrounding zone. The artery, vein and nerve become densely adherent, and this may be so extreme that they are separated with difficulty. The arteries are more frequently obliterated than their accompanying veins. The occlusion extends for variable lengths and then stops. Sometimes occlusion occurs at two different levels in the vessel, and the lumen between may be patent. On [2] opening an occluded vessel in the longitudinal direction, starting above the point of firm occlusion, one first notices, if the disease is progressing, a soft red adherent thrombus. In a short distance this may be replaced by more firm yellowish-brown material, and the lumen here is obviously much smaller and much more difficult to follow. This may run for a considerable distance along the course of the vessel, and then may be replaced again by a red thrombus, which is possibly a propagation of the clot. If the lesion is still further advanced there will be dense yellowish-white material completely occluding the lumen, so that it is impossible to open the vessel through the lumen in the longitudinal direction. If pressure is made on the vessel here, a minute drop of blood may be expressed from a tiny canal in the occluding substance. The vessels are not brittle as in advanced arteriosclerosis; nor in the patent lumens are there markedly irregular encroachments as are occasioned by an atheromatous process. The vessels, however, are indurated. The nerves are often closely bound to the vessels by tissue which has the characteristics of scar tissue.

The microscopic appearance in this disease naturally depends on the stage to which the disease has progressed in any one particular area. One of the earliest microscopic changes in the walls of the vessels is the presence of lymphocytes. Coincident with the appearance of the lymphocytes are changes within the wall of the vessel. The nuclei of the endothelial cells become larger, and the cells become more numerous. Connective tissue cells also exhibit proliferative activity. The older lesions show a marked increase in the density of the connective tissue of the adventitia as well as thickening of the intima. In the older lesions the fibrosis becomes extreme between arteries, veins and nerves. The striking changes in the media are exudative and proliferative, with preservation of the muscular layer. The changes within the intima are distinctly proliferative, both in arteries and in veins. The intimal thickening is cellular, especially on the free border, and these cells have large oval nuclei, which tend to range themselves in a radial distribution with the long axis of the vessel. The proliferative process in the intima, though marked, rarely continues until occlusion has taken place. Hence, it has been assumed that the thrombosis that actually takes place has been initiated by the same factors that have been responsible for the proliferative changes in the walls of vessels. The thrombus goes through all of the changes from a red blood clot to an organized fibrous band. In the later stages canalization and partial recovery of the arterial circulation may occasionally result.

SYMPTOMS

Intermittent claudication is one of the earliest symptoms and undoubtedly is due to anoxemia brought on by exercise. This is followed by or associated with postural color changes, that is, rubor with dependency and pallor with elevation. If the disease progresses, localized continuous pain may be present during the period of rest. Trophic changes are manifested by nonhealing abrasions from trauma, ulcerations of digits and the development of localized or massive gangrene. The disease usually progresses slowly and may remain temporarily quiescent in any one of the earlier stages. In some cases the disease never progresses to ulceration and gangrene, whereas in others the symptoms respond favorably to medical treatment, but more often it slowly involves the opposite extremity. In reviewing a series of 240 cases of thrombo-angiitis obliterans, Barker [3] found that the disease involved the lower extremities in 60 per cent; it affected the upper extremities alone in 2 per cent, and both upper and lower extremities in 38 per cent. It further was observed that the disease would sooner or later become bilateral even though more prominent in one extremity. In reviewing these statistics of cases it was learned that the disease progressed until it became bilateral in 98 per cent of the cases.

MEDICAL TREATMENT

Medical treatment consists of changing occupation in order to avoid continuous standing on the feet during work, and avoidance of trauma and exposure to cold. When hospitalization becomes necessary, rest in bed for several weeks is essential, and the cautious employment of local dry heat, contrast baths, hot mild antiseptic baths for extremities and bland antiseptic dressings are valuable measures. The administration of protein for the purpose of producing fever and vasodilatation in collateral and nonoccluded arteries is the most effective method of relieving symptoms and encouraging the healing of abrasions and ulcers. Vaccine therapy may be continued in conjunction with the previous medical measures following dismissal from hospital. The doses of vaccine necessarily will vary with individuals, but usually range from 25,000,000 to 75,000,000 of Lederle's triple typhoid vaccine; Lilly's antigen H vaccine is equally effective. Numerous other methods such as the administration of hypertonic saline solution, sulphur and oil, and acetylcholin by injection have been tried, the results of which cannot compare with the vaccines mentioned.

Records show that 56 per cent of patients were markedly improved following active treatment and that the incidence of amputation of leg or hand, which was 25 per cent, in cases in which treatment was inadequate or was not given, had been reduced to 14 per cent. Although medical treatment has been effective and the incidence of amputation has been lowered, progression of disease developed in many cases, which stimulated us to look for more effective methods of treatment. This led to the employment of sympathetic ganglionectomy and trunk resection for a group of patients

2. Brown, G. E.; Allen, E. V., and Mahorner, H. R.: Thrombo-Angiitis Obliterans, Philadelphia, W. B. Saunders Company, 1928.

3. Barker, N. W.: Personal communication to the authors.

suffering with this disease. Since we had no criterion to follow in the selection of suitable cases at the beginning of the investigation, we were compelled to progress by trial and error, but as experience developed we have found that we can determine preoperatively the patients who will respond to sympathectomy. Study of the cutaneous temperature revealed that we can reproduce by sympathectomy increased blood flow and the increased skin temperature produced by vaccine therapy and that these effects remain continuously increased, whereas the effects of vaccine therapy are only temporary.

VASCULAR STUDIES

In [4] a search for some means to determine the flow of blood to an extremity, the capillaries were examined, and elimination of heat [5] and surface temperature were measured. These procedures do not estimate exactly the volume flow of blood, but give relative estimates; one can observe the number of capillary loops to a given field and can determine the rate of flow of the corpuscles and the elimination of heat and the temperature of the skin that are dependent on the flow of blood. By the Stewart-Kegerreis calorimeter the radiation of heat before and after operation could be determined, but it was not until Brown suggested recording the temperature of the skin before fever had been induced, and during its course, that there was any accurate knowledge concerning vasospasm. The thermocouples of the electrothermometer are fastened to the various portions of the fingers, toes, hands, feet and body, in preparation for readings of surface temperature. First, readings are recorded of the temperature of the room, and of the mouth and surface of the skin. Thus, corrections can be made for the environmental temperature, and the temperature of the mouth and skin can be compared with the corresponding temperatures of a normal person, and with the readings taken during the height of fever. The fever is produced by administering, intravenously, a foreign protein, for example, 5,000,000 to 75,000,000 triple typhoid vaccine. The dose depends on the weight and sex of the patient. Hourly readings are made until the maximal rise of fever has been obtained. These readings are compared with the initial temperatures, to determine the ratios of increased temperature. General, regional and spinal anesthesia produce vasodilator effects and can be employed instead of administration of protein.

In studying the temperature of a normal person, it will be observed that the temperature of the mouth may have increased as much as an average of 2 C., whereas the temperature of the skin over the digits will have increased 4 to 6 C., or two to three times the mouth temperature, indicating that the peripheral arteries have been opened by inhibition of the vasomotor center and that more blood has been permitted to flow to the periphery. In cases of vasospastic disorder, the difference in temperatures is still greater, since the initial surface temperature of the digits is lower than that of a normal subject exposed to the same room temperature. In cases of general arterial sclerosis there may be little, if any, difference in the skin temperatures before and after administration of the foreign protein, indicating that the vessels are incapable of relaxing to allow increase of the flow of blood to the periphery. In cases of thrombo-angiitis obliterans it is possible to determine whether there exists an element of vasomotor spasm of the collateral vessels and unoccluded arteries; it is possible, too, to determine by individual readings the condition of each digit. Therefore, the test serves as an index, and unless the rise in temperature of the skin of the digits is two or more times greater than the rise of the oral temperature, the condition is considered inoperable. The test also permits determination of the degree of collateral circulation in different portions of the same digit. This aids in arriving at a prognosis concerning the preservation or loss of digits with ulcerated tips.

Further, to substantiate the opinion that vasomotor spasm exists and is due to stimuli of central origin carried over postganglionic gray rami to the arteries, instead of being due to a local fault [6] in the arterial walls, we have observed that increased blood flow with resulting increased temperature is readily produced by anesthesia of the vasomotor nerve by nerve block and regional and spinal anesthesia. In cases of Raynaud's disease the color changes are immediately abolished by anesthesia, and during the anesthesia they cannot be reproduced by emotional stimuli or exposure to cold. Similar results are obtained by a thorough interruption of gray rami, which is most effectively accomplished by removing the sympathetic ganglions with resection of trunks carrying vasomotor fibers. Following cervicothoracic ganglionectomy the retinal arteries and veins have been found to be dilated from one and a third to one and a half the preoperative size. Repeated calorimetric and cutaneous temperatures in cases of sympathectomy have revealed that the increased blood flow has been maintained for seven years in the cases in which operation was first performed.

SELECTION OF CASES

The real problem is to select suitable cases for operation and to decide when operation is indicated.[7] It is obvious that vasodilatation cannot be produced in an arteriosclerotic or occluded artery, and that surgical intervention is useless unless there is positive evidence of vasospasm in the remaining nonoccluded arteries. The operation is not indicated in the milder cases or in those in which response is quick and favorable to medical treatment. In advanced cases of massive gangrene the condition is likewise nonsurgical unless it is hoped to effect a lower amputation than otherwise would be required. Following amputation, sympathectomy may be indicated to preserve the opposite extremity.

The operation has proved to be of greatest value in slowly progressive cases and in those in which patients cannot afford or are unable to sacrifice the time required to rest in bed and receive local heat, contrast baths and vaccine therapy. During examination such patients are classified according to an outline proposed by Brown, Allen and Mahorner.[2]

Slow Progression.—This is the most common type. Coldness of the feet is usually the first symptom, followed by excessive fatigue of single digits, the arch of

4. Adson, A. W.: The Results of Sympathectomy in the Treatment of Peripheral Vascular Diseases, Hirschsprung's Disease and Cord Bladder, to be published.

5. Brown, G. E., and Adson, A. W.: Calorimetric Studies of the Extremities Following Lumbar Sympathetic Ramisection and Ganglionectomy, Am. J. M. Sc. **170**: 232 (Aug.) 1925.

6. Simpson, S. L.; Brown, G. E., and Adson, A. W.: Raynaud's Disease: Evidence That It is a Type of Vasomotor Neurosis, Arch. Neurol. & Psychiat. **26**: 687 (Oct.) 1931.

7. Adson, A. W.: Surgical Relief of Raynaud's Disease and Other Vascular Disturbances by Sympathetic Ganglionectomy and Perivascular Neurectomy, Ann. Clin. Med. **5**: 161 (Aug.) 1926. Adson, A. W., and Brown, G. E.: Thoracic and Lumbar Sympathetic Ganglionectomy in Peripheral Vascular Diseases: Therapeutic Value, J. A. M. A. **94**: 250 (Jan. 25) 1930. Adson, A. W.; O'Leary, P. A., and Brown, G. E.: Surgical Treatment of Vasospastic Types of Scleroderma by Resection of Sympathetic Ganglia and Trunks, Ann. Int. Med. **4**: 555 (Dec.) 1930. Brown, G. E.; O'Leary, P. A., and Adson, A. W.: Diagnostic and Physiologic Studies in Certain Forms of Scleroderma, Ann. Int. Med. **4**: 531 (Dec.) 1930. Henderson, M. S., and Adson, A. W.: Sympathetic Ganglionectomy and Trunk Resection in Arthritis: Indications and Results, J. Bone & Joint Surg. **14**: 47 (Jan.) 1932.

the foot, the wrist, ankle, calf or forearm. Excessive fatigue gradually changes into and is replaced by the pain of claudication occurring in similar areas which progresses and produces an increasing degree of disability. Color changes with change of posture are followed by trophic changes which occur spontaneously or are incited by incision of toes, removal of toe-nails,

TABLE 1.—*Incidence of Operation Among Men and Women, Average Age, Average Duration of Symptoms on Admission, and History of Amputation Previous to Admission*

Thrombo-Angiitis Obliterans Treated by Sympathectomy	Operations on Men	Operations on Women	Average Age, Years	Average Duration of Symptoms, Months	Previous Amputations
Group 1, uncomplicated					
Disease in upper extremities	3	1	39	75	Legs, 2 Arm, 1
Disease in lower extremities	17	2	35	41	Legs, 3
Group 2, with ulcers					
Disease in upper extremities	1		34	30	
Disease in lower extremities	42	1	40	59	Legs, 4 Toes, 7
Group 3, with gangrene					
Disease in upper extremities	10		36	35	Legs, 2 Fingers, 2
Disease in lower extremities	26	1	39	57	Legs, 2 Toes, 2
Total	99	5	35.5	49	

accidental trauma, amputation of toes or the application of blistering ointments. With the occurrence of trophic changes, the pain is sharply accentuated and becomes almost unbearable. The gangrenous areas increase in extent, necessitating amputation, or healing may occur in a group in which pain can be relieved. The extremities are cold; there is excessive pallor with elevation and abnormal rubor with dependency. Pulsation in the arteries is diminished or absent. The entire process is completed in from four to eight years.

Absence of Progression.—In this type mild symptoms of vascular insufficiency (excessive fatigue or the pain of claudication) progress slowly for a time and then remain stationary. The extremities are cold, the arteries are obliterated, and postural color changes are present. Trophic changes other than proliferation of the nails and increased thickening of the skin over the weight-bearing area do not occur. Disability is minimal in spite of symptoms which may have endured from eight to twelve years.

Circulatory Compensation.—This type is not widely recognized, although it is fairly common. Shallow ulcers do not progress and after from six months to a year healing occurs. Gradually other symptoms largely disappear, leaving the patient with extremities approximately 80 per cent adequate for all needs. With care patients in this group may go on indefinitely with extremities functioning sufficiently well for all ordinary needs. Weber [8] has noted the return of pulsation in an obliterated radial artery, and this has been observed in several of our cases.

Acute Fulmination.—In this type the clinical syndrome is the antithesis of slow progression. Claudication appears relatively suddenly and progresses rapidly. The rest pain is severe before gangrenous changes occur and greatly accentuated afterward. Edema and lymphangeitis are present around the gangrenous area and there may be slight fever and leukocytosis. The gangrene progresses rapidly; the pain is unbearable and intractable to all measures. Amputation is necessary. The process may be complete after from three months to one year. This clinical syndrome may occur at any time in the clinical course of cases presenting a previous course outlined in the first and second groups.

On completion of the examination, which includes laboratory and vascular studies, we decide on the course of treatment, basing our judgment not only on the condition of the vascular system but on the present status and course of the disease. As previously stated, the operation is not employed in mild cases without ulcer; neither is it employed in cases in which there has been no progression nor in which the circulation has become compensated. It is never wise to urge operation during the acute stage of inflammation with active cellulitis. This type of patient should be hospitalized and treated medically from three to six weeks.

The slowly progressive cases, which include most cases of thrombo-angiitis obliterans, are most suitable for sympathectomy, and even then when extensive ulcers or gangrenous digits are present, we are inclined to hospitalize patients for two or three weeks under vaccine therapy in order to determine how the individual patient is going to respond to the vasodilating effect obtained by administration of protein before sympathectomy is performed. If the disease affects both the lower and upper extremities, we usually carry out a sympathetic ganglionectomy and trunk resection to interrupt the vasomotor fibers to the extremities affected first, and then wait six weeks until the patient has thoroughly recovered before performing the second operation. We usually perform bilateral sympathectomy even though the disease appears to produce symptoms in only one extremity, since ultimately it is almost sure to involve the opposite extremity, and since sympathectomy has apparently controlled the process and preserved the opposite extremity. However, recurring phlebitis may develop in either extremity following sympathectomy but this, aside from producing localized pain and edema, does not jeopardize the life of the extremity.

TABLE 2.—*The Incidence and Relief of Intermittent Claudication and Rest Pain*

Thrombo-Angiitis Obliterans Treated by Sympathectomy	Operations	Relieved of Intermittent Claudication: With Intermittent Claudication	Relieved of Intermittent Claudication: With Rest Pain	Relieved of Rest Pain	Continuance or Recurrence of Pain
Group 1, uncomplicated					
Disease in upper extremities	4	0	3	2	1
Disease in lower extremities	19	17	8	5	1
Group 2, with ulcers					
Disease in upper extremities	1	0	1	1	0
Disease in lower extremities	43	36	36	34	7
Group 3, with gangrene					
Disease in upper extremities	10	0	10	10	0
Disease in lower extremities	27	20	25	17	8
Total	104	63	83	69	25

The average degree of improvement in intermittent claudication and rest pain was 85 per cent.

SURGICAL TECHNIC

As the surgical technic has been described previously,[9] we shall not go into details, as it is generally accepted that the vasomotor innervation of the arteries

8. Weber, F. P.: Return of Pulsation in Thrombo-Angiitis Obliterans, Brit. M. J. **2**: 52 (July 12) 1924.

9. Adson, A. W.: Cervicothoracic Ganglionectomy, Trunk Resection and Ramisectomy by the Posterior Intrathoracic Approach, Am. J. Surg. **11**: 227 (Feb.) 1931. Adson, A. W., and Brown, G. E.: Treatment of Raynaud's Disease by Lumbar Ramisection and Ganglionectomy and Perivascular Sympathetic Neurectomy of the Common Iliacs, J. A. M. A. **84**: 1908 (June 20) 1925; Raynaud's Disease of the Upper Extremities: The Successful Treatment by Resection of the Sympathetic Cervicothoracic and Second Thoracic Ganglions and the Intervening Trunk, ibid. **92**: 444 (Feb. 9) 1929.

and veins does not run centrifugally along the vessels but that the vessels receive their innervation at various levels corresponding to the musculocutaneous segments. Although Leriche conceived the idea that vasodilation might be accomplished by interrupting the vasomotor fibers by a periarterial stripping operation, the operation was not of sufficient scope to include all of the nerves. If the vasomotor fibers are divided by ramisection or ganglionectomy and trunk resection, it is immaterial which method is used so long as they are completely resected. In treating thrombo-angiitis obliterans of the toes and feet we prefer to use the abdominal transperitoneal approach which permits removal of the second, third and fourth lumbar sympathetic ganglions with the intervening trunks through an abdominal incision. In sympathectomy of the vessels of the fingers and hands we choose the posterior approach, resecting a portion of the first rib and the transverse process of the first thoracic vertebra on each side, in order to enter the mediastinum and remove the inferior sympathetic cervical and first thoracic ganglions with the upper portion of the thoracic trunk. Occasionally, we can include the second thoracic ganglion through the same incision. When we are unable to include this ganglion we divide all ascending rami to the first thoracic and eighth cervical nerves. We believe this operation to be more thorough than the anterosuperior approach since it is difficult to include all of the vasomotor fibers in the gray rami coming from the second and first thoracic ganglions by the anterior and superior approach.

TABLE 3.—*The Incidence of Trophic Lesions, Gangrenous Lesions in Early Cases Not Improved by Operation and the Incidence of Recurring Trophic Lesions Requiring Amputation*

Thrombo-Angiitis Obliterans Treated by Sympathectomy	Operations	Trophic Changes: Patients With Edema	Patients With Ulcers	Patients With Digital Gangrene	Amputation During Hospitalization	Recurring Phlebitis	Recurring Arterial Occlusion	With Recurrent Ulcers and Gangrene	Amputation of Extremities for Recurrent Gangrene
Group 1, uncomplicated									
Disease in upper extremities	4	0	0	0	0	0	0	0	0
Disease in lower extremities	19	1	0	0	0	2	4	1	Leg, 1
Group 2, with ulcers									
Disease in upper extremities	1	0	1	0	0	0	0	0	0
Disease in lower extremities	43	1	43	0	Toes, 3 Legs, 2	6	2	1	Toes, 1 Foot, 1 Leg, 1
Group 3, with gangrene									
Disease in upper extremities	10	1	10	8	Fingers, 2	0	0	2	0
Disease in lower extremities	27	9	23	26 3 massive gangrene	Toes, 2 Legs, 5	2	3	3	Legs, 4
Total	104	12	77	34	Toes, 5 Legs, 7 Fingers, 2	10	9	7	Toes, 1 Legs, 6 Foot, 1

RESULTS

This study includes a review of 100 consecutive cases from our earliest experience to the present time. There were 89 bilateral lumbar sympathetic ganglionectomies and trunk resections and 15 bilateral cervicothoracic ganglionectomies with resection of the upper portion of the thoracic trunk. Operation was performed in 4 cases of thrombo-angiitis obliterans involving both the upper and lower extremities, which accounts for 104 bilateral operations. Ninety-six patients were males and 4 were females.

The disease occurs chiefly in the fourth decade of life (table 1). The average duration of symptoms was four years on admission. Many of the patients had had toes and extremities amputated before admission. Seven came with the disease so advanced that it was impossible to save extremities by sympathectomy. In the earlier period of investigation we attempted the operation, since we had no method to determine preoperatively the degree of vasomotor spasm (tables 2 and 3).

Table 4 reviews the results accomplished with the complications incident to operation. The neuritic symptoms are not relieved by either medication or sympathectomy. In several instances cutaneous nerve branches were divided with no relief. In two instances, chordotomy was performed with moderate success. The symptoms, undoubtedly, are due to interstitial changes resulting from thrombosis of the blood supply to these nerves. Fortunately, neuritic pains are only occasionally present.

TABLE 4.—*The Results Obtained and Complications Encountered*

Thrombo-Angiitis Obliterans Treated by Sympathectomy	Results: Operations	Improved	Average Degree of Improvement, per Cent	Useful Extremity	Complications
Group 1, uncomplicated					
Disease in upper extremities	4	4	81	4	Pneumonia, 1 Incomplete operation, 1
Disease in lower extremities	19	16	76	16	Neuritis, leg amputation Neuritis, chordotomy, death Death, 1; pulmonary embolism
Group 2, with ulcers					
Disease in upper extremities	1	1	90	1	
Disease in lower extremities	43	39	78	33	Neuritis, 1; chordotomy Neuritis, 2 Pneumonia, 1
Group 3, with gangrene					
Disease in upper extremities	10	10	82	9	Incomplete operation, 3 Pneumonia, 1
Disease in lower extremities	27	17	73	13	Deaths, 5; due to pneumonia, 2 cardiac, 2 anesthetic, 1 Neuritis, 1
Total	104	87	80	76	

In the absence of trophic lesions sympathectomy checked progress of disease in opposite extremity in every instance.

During the early development of sympathectomy in the treatment of thrombo-angiitis obliterans, approximately one patient in seven was sympathectomized. During the last two years the ratio has been increased

so that one in three is advised to have sympathectomy. It is further interesting to note that amputation following sympathectomy has been lowered in the last two years through more accurate evaluation of vasomotor spasm and the proper selection of cases for operation.

Sequelae.—Since the vasomotor fibers are intermingled with other postganglionic gray fibers supplying sebaceous and sweat glands, and pilomotor muscles, it is a necessity that these two be divided during sympathectomy as dryness of the skin is thus produced. This dryness is not serious, and if it appears troublesome it can be relieved by the application of hydrous wool fat. The condition serves as an excellent index in determining whether all of the vasomotor fibers have been divided, for if they are not all divided sweating will persist. Lumbar sympathectomy includes postganglionic fibers to the hypogastric plexus, but since these fibers carry inhibition stimuli to the detrusor muscle of the bladder, the musculature of the rectum and contraction stimuli to the internal sphincters of the bladder and rectum, complaints are not made by the patient. This is undoubtedly due to the fact that other fibers carrying similar impulses remain uninterrupted in the presacral nerve and that voluntary control to the external sphincters is not disturbed.

Cervicothoracic ganglionectomy and trunk resection produce Horner's syndrome, but when bilateral the apparent enophthalmos, contracted pupils and the narrowing of the palpebral fissure are not conspicuous nor do they interfere with vision.

ABSTRACT OF DISCUSSION

DR. A. W. ALLEN, Boston: Our experience in a series of peripheral circulatory disorders at the Massachusetts General Hospital would bear out the remarks of Drs. Adson and Brown in regard to sympathetic ganglionectomy as far as the primary and secondary vasomotor conditions are concerned. Our experience, however, has not been like theirs with thromboangiitis obliterans. Perhaps the cases in Rochester may differ from ours somewhat in that they are dealing with the disease in an earlier stage. I am inclined to think that the cases that come into our hospital as bed patients are usually rather advanced. In this advanced group we are not able to find more than one case out of ten with a sufficient vasomotor gradient to warrant an attack on the sympathetic nervous system primarily. The cases of thrombo-angiitis in which we have used this operation have been disappointing. We believe that certain general measures which we have advocated and which are undoubtedly carried out in Dr. Adson's clinic by the peripheral vascular service may play a large rôle in the success of some of his cases, perhaps as large a rôle as the sympathectomy itself. In a chart illustrating a comparative diagnostic procaine hydrochloride block of the sympathetic nervous system, by spinal anesthesia, the upper curve represents a case of primary vasomotor disturbance, Raynaud's disease, and shows a quick rise in surface temperature. In five minutes' time the temperature is elevated approximately 15 degrees fahrenheit. The lower curve is that of a typical case of thrombo-angiitis obliterans, under spinal anesthesia, and it takes, in this case, forty minutes to produce a rise in surface temperature of 9 degrees. I would not consider that a patient who had a vasomotor index as low as 9 degrees would respond to sympathectomy in a satisfactory manner. The important feature in the type of case that we see is the pain these individuals have, the rest pain. A large percentage of them have open lesions; in fact almost every patient submitted to our hospital wards has open lesions of some sort. In these cases we find that sympathectomy will not relieve the pain. Therefore we have had to develop another form of treatment for these individuals. The peripheral sensory nerves of the foot are exposed at about the junction of the middle and lower thirds of the leg. By exposing these nerves under local anesthesia and injecting the larger nerve, the posterior tibial, over a short distance with alcohol, we can anesthetize that nerve for a period of from four to eight months. The smaller nerves, i. e., the anterior tibial, the peroneal and the sural, can best be treated by crushing. The whole foot can be made anesthetic by this method. These patients are absolutely comfortable, and in addition to being able to tolerate dressings, can carry out exercises. This nerve block can also be counted on to produce exactly the same rise in surface temperature or capillary dilatation as is produced by sympathectomy.

DR. ALFRED W. ADSON, Rochester, Minn.: I want to say just a word about vascular conditions. It is true that in our original experience the results of sympathectomy were not as good as they are today, because we were attempting to operate on patients who did not have sufficient vasospasm or, rather, sufficient vessels that could go into spasm that we could relieve. Therefore, all our patients are hospitalized, given vaccine and a regional or spinal anesthetic, to determine the degree of vasospasm, and unless we are able to record an increase in skin temperature over the digits twice as great as that obtained by the mouth temperature during the height of fever, we do not operate. In using the spinal or the regional anesthesia the same vasodilatation effects are accomplished and sympathectomy is not employed unless the peripheral skin temperature is raised 3 degrees centigrade. We frequently administer from one to three injections of typhoid vaccine to determine whether the patient is relieved by vasodilatation. If the index is favorable and he is relieved, we perform sympathectomy. We have encountered patients with pain; however, one is not always able to relieve that pain by simply cutting the nerve, since interstitial changes have occurred above the local ulcer. We have done chordotomy in two cases, with only moderate success.

HAVERHILL FEVER (ERYTHEMA ARTHRITICUM EPIDEMICUM)

A CASE REPORT AND BACTERIOLOGIC STUDY

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AND
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In January, 1926, Place, Sutton and Willner[1] made careful clinical and epidemiologic studies of a group of cases occurring in Haverhill, Mass. The condition they observed in forty-five cases appeared to constitute a definite entity and was called by them "erythema arthriticum epidemicum." The outstanding clinical features of the cases described were (1) the symptoms of an infection, (2) a rash, and (3) a polyarthritis. Onset was sudden and came with or without chills, with fever and malaise and with or without vomiting, intense headache and prostration. Fever in the beginning often reached from 103 to 105 F. and came down usually on the third or fourth day. The period of eruption commenced on the first to the third day of illness, increased for from one to three days, and lasted then from three to seven days. This eruption consisted of dull red, circumscribed, maculopapular lesions from 2 to 4 mm. in diameter, in general of rubelliform to morbilliform configuration. The rash was distributed mostly on the extensor aspects of the extremities, about joints and in more sever cases across the shoulder girdle and on the trunk or face. Petechial hemorrhages were observed and could be produced by applying a tourniquet. Desquamation was of fairly frequent occurrence. Joint involvement began usually on the

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1. Place, E. H.; Sutton, L. E., Jr., and Willner, Otto: Erythema Arthriticum Epidemicum: Preliminary Report, Boston M. & S. J. **194**: 285 (Feb. 18) 1926.

first to the fourth day of illness. Pain occurred usually in two or more large joints and occasionally in the small joints of the fingers and toes. Active or passive movement of the spine was painful in most cases. Changes varied from almost negligible involvement to marked swelling and redness with fluid. These persisted for three or four days and in some cases beyond two weeks. Variable symptoms were cough, sore throat, bronchitis and delirium. White blood counts ranged from 6,800 to 19,000. Detailed bacteriologic studies of an organism recovered from the circulating blood and from the joints of patients during the Haverhill epidemic were carried out in the Boston City Hospital by Parker and Hudson.[2]

During the spring of 1931, a case of Haverhill fever came under observation in the Fourth Medical Service of the Boston City Hospital. The clinical course of the disease was typical and the specific organism was isolated from the circulating blood on several occasions. The infrequency of this infection, the difficulty in the diagnosis of sporadic cases and the importance of recognizing such cases seem to warrant this report.

REPORT OF CASE

The following is a clinical summary of the case observed by us:

History.—J. C., a man, aged 58, separated from his family and living under poor social conditions, was admitted to the Fourth Medical Service, Boston City Hospital, shortly after midnight, April 23, 1931, complaining of "weakness and pains in the legs." Several months previous to admission the patient "froze" his feet. He noticed afterward increasing swelling of both of them on standing and recurrent numbness in the left foot. Sudden bleeding from the second left toe while walking was noted three weeks before admission. He began to complain of a severe sore throat at about this time. A sensation of tingling and "burning up" in his toes and feet began to trouble him from eight to ten days previous to entrance. About two days after onset of this symptom he bathed his feet in cold salt water in the harbor and noticed many bright red spots on both legs. These lesions became more numerous before he entered the hospital. His appetite had been poor for two weeks, as he felt "generally sick" and abstained often from eating through fear of vomiting. No actual vomiting, abdominal pain or jaundice had occurred. For one week the patient had felt worse and had "trembling chills, just like the malaria shake" at apparently irregular intervals. During the five days previous to admission, he had pains in his feet that were so severe as to limit activity. His knee joints became very painful and at times felt as though "pounded with a club." Considerable spasm resulted if he tried to flex them. His hands began to tingle and burn two days before entrance and became increasingly weak and painful. He had severe pains in his wrists and elbows for the same period of time. He had had many colds all his life and at least one severe sore throat each winter. When the patient was quite young he had what he called rheumatic fever, with swollen, painful joints, for which he was in bed at intervals for a period of nine months. He had had pneumonia twice. Hemoptysis occurred twenty-three years ago, after which he stayed in tuberculosis sanatoriums for three periods and had repeated hemoptyses. The last occurred seven years ago. Loss of weight in recent years was questionable. There was no history of night sweats.

The patient cooked his own meals and ate plenty of fresh vegetables and fruits. He used a considerable quantity of alcohol until prohibition.

Nocturia had occurred three or four times for one year. He experienced no pain or burning except for a slight, rare suprapubic pain on attempting to start the stream. He had had gonorrhea at the age of 20. Syphilis was denied by symptoms and name.

Examination.—He was fairly well developed and nourished and in no apparent distress. The eyes, ears, nose and lips were normal. The tongue showed a small red area from 3 to 4 mm. in diameter, with an ulcerated center, in the middle of the left edge. This was apparently caused by the sharp edge of a carious tooth. There was a marked oral sepsis. The throat was diffusely inflamed, with small tonsils spread out over the faucial walls. No exudate or membrane was present. Small tonsillar and posterior cervical lymph nodes could be palpated. The thyroid was of normal consistency and shape. The chest was long, with a depression in the left anterolateral region and a flare of the costal margin below. Expansion was normal. Examination of the lungs revealed evidence of an old fibroid tuberculosis of the right upper lobe. The heart was normal. The spine showed a slight kyphosis in the thoracicolumbar region. The abdominal wall was somewhat rigid but no tenderness was present. The liver extended 4 cm. below the costal margin and the edge was sharp and hard. The spleen and kidneys were not palpable. The genitalia were normal.

Examination of the extremities revealed the following: Numerous circumscribed bright red, some apparently hemorrhagic macules 1 to 4 mm. in diameter and a few papules were scattered over both legs, most numerous and extensive over the extensor aspect. A smaller number of lesions were found on both arms, on the palmar surfaces of the hands and in the right axilla. Swollen areas of localized redness and tenderness quite definitely demarcated up to about 6 cm. in diameter were present, the largest posterior and a little above the left internal malleolus; others about both knees and over the dorsa of the hands above each carpus. One or more appeared over the middle of both lower legs anteriorly, quite apart from any joint. The ankles, knees, wrists and elbows were quite tender to palpation and passive movement caused pain. A small amount of fluid was present beneath the right patella. No crepitus was evident. The deep reflexes were present. The second toe of the left foot was macerated and infected. The nail was absent and there was evidence of an osteomyelitis of the phalanges. There was sclerosis and tortuosity of the peripheral arteries. Dorsalis pedis pulsations were present in both feet.

Systolic blood pressure was 134, diastolic pressure 80, temperature 100.4 F., pulse 80, respiration 20.

The white blood count on admission was 9,600 per cubic millimeter. The differential count showed polymorphonuclear neutrophils 66 per cent, lymphocytes 27 per cent, monocytes 7 per cent, eosinophils 0 per cent, and basophils 0 per cent. The red blood count was 4,840,000 per cubic millimeter. Hemoglobin measured 77 per cent by the Sahli method. The red cells showed slight poikilocytosis, anisocytosis and polychromatophilia. Platelets were normal. The white blood count reached 10,500 three days after admission but remained below this level the remainder of his stay in the hospital.

Roentgen studies showed an old healed Pott's disease and hypertrophic arthritis of the lumbar spine; elbows and hands, normal; feet, marked arteriosclerosis; left foot, destruction of the terminal phalanx of the second left toe and osteomyelitis; knee joints, hypertrophic arthritis; teeth, multiple caries and periapical infection; chest, old fibroid tuberculosis.

Throat cultures on admission showed Streptococcus viridans, Pneumococcus, and Staphylococcus albus. Cultures of fresh material from the infected toe revealed Staphylococcus aureus.

Blood cultures showed a positive growth of Haverhillia multiformis. The clinical diagnoses made at the time of admission were pulmonary tuberculosis, symptomatic purpura and sepsis of the toe. Typhus fever and Rocky Mountain spotted fever were also considered as possible diagnoses.

Clinical Course.—During the first two weeks the patient had a septic temperature with daily swings from 100 to 103 F. His pulse remained at a level between 80 and 100. Following the third and fourth weeks, during which his temperature was irregular with two rises to 100 and one rise to 101, the patient remained practically afebrile.

On the day following admission the rash appeared to be somewhat faded and within four days it had largely disappeared except for a faint dull pigmentation. The painful and tender areas of induration persisted and several became more prominent, particularly in the region of the right elbow.

2. Parker, Frederic, Jr., and Hudson, N. P.: The Etiology of Haverhill Fever (Erythema Arthriticum Epidemicum), Am. J. Path. 2: 357 (Sept.) 1926.

Fluid in the right knee joint was noted for several days but was of small amount, so that aspiration was not attempted.

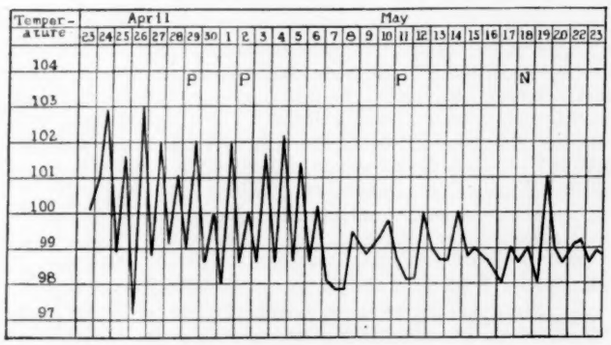
For about three weeks after admission, migratory pain and tenderness with decreasing periarticular induration and swelling persisted. It was five and a half weeks before joint symptoms had subsided. The roentgenograms, taken on admission, of the joints involved during this time, with the exception of the knees, were interpreted as negative.

While in the ward he developed a prominence over the localized kyphos and some soft tissue swelling lateral to it. This was considered as an advance of the old Pott's disease. Further roentgenograms were interpreted as such. The second left toe was amputated three weeks after admission and the wound healed promptly. Orthopedic measures and social aspects of the case kept the patient in the ward several months. He remained, however, symptom free and afebrile.

In summary, the important and characteristic clinical features of the case were a severe sore throat, a rash, pain and tenderness in the ankles, knees, wrists and elbows, and a septic temperature.

BACTERIOLOGY

The organism was recovered from the circulating blood seven days, ten days and nineteen days after admission of the patient to the hospital.[3] The first negative blood culture was obtained twenty-six days after his entrance. Cultures were taken by putting from 5 to 10 cc. of blood from a vein into 100 cc. of plain



Temperature in case of Haverhill fever: *P*, blood culture positive; *N*, blood culture negative.

broth (beef infusion containing 0.1 per cent dextrose). Incubation for seventy-two hours was necessary to produce good growth of the organism. The positive cultures showed darkening of the blood at the bottom of the flask and numerous round yellow balls from 0.1 to 0.3 cm. in diameter lying on the surface of the layer beneath the clear broth. Smears revealed numerous gram negative rods, arranged singly, in small clumps and in short tangled or parallel chains.

Morphology.—The morphology of the organism is to a considerable extent dependent on the type of medium used for growth. In favorable mediums it appears microscopically as a rod from 2 to 5 microns in length and about 0.1 to 0.4 micron in width, with a tendency to form short chains, which are arranged in small clumps, tangled together or parallel. Many bacilli from 3 to 4 microns in length and some long, slender bacilli are usually present. Isolated coccoid forms and short chains of cocci are also found.

In less favorable mediums, the polymorphism of the organism is most evident. Besides growing in bacillary form, which may compose the minor portion of the culture, the organism occurs in long fine threads and filaments, which are often quite tangled and measure from 30 to 40 microns or more in length. Long rods may occur in the course of the threads or separated from them. Frequent fusiform spherical swellings in the filaments and rods are characteristically found. These enlargements are sometimes from 10 to 15 microns in thickness. There is evidence in this type of growth of true branching, Y-shaped forms being occasionally found. Some threads stain irregularly, showing many fine granules in the cell body.

On solid mediums, the polymorphism reaches its maximum and the filaments and threads may form 75 per cent or more of the elements. In transplants from solid to liquid mediums, the variation in size and shape is retained to a large extent.

The age of the culture seems to bear little relation to the morphology. Old cultures on favorable mediums may show only a small percentage of the filaments, which appear to be resistant forms.

In smears of material from infected animals, such as the peritoneal exudate and heart's blood, the organisms are found only as short slender rods, from 2 to 3 microns in length.

Staining Reactions.—The organism, as freshly recovered from a blood culture, stains feebly with aniline dyes. It is gram negative and is readily decolorized by acid. No capsules or spores can be demonstrated.

Odor.—No odor is present.

Cultivation.—The optimum temperature for cultivation is from 35 to 38 C. Prolonged incubation kills the organism, five days being the maximum to ensure living cultures. In ascitic fluid broth, the length of life during incubation is less than in other mediums.

The mediums of choice are blood broth, ascitic fluid broth, or fresh clotted rabbit's blood that has been inactivated by heating it for fifteen minutes at 55 C. In ascitic fluid broth the organism grows typically at the bottom of the tube or along the side, with clear broth above. Fluffy balls of organisms from 0.1 to 0.3 cm. in diameter are frequently present. The growth in blood broth is the same as that described in blood cultures. After repeated subculturing, the organism changes the blood to a dark purple color in forty-eight hours. No gross evidence of growth is seen in clotted rabbit's blood, but microscopically an abundant growth of short bacilli, singly and in chains, is found at the end of from twenty-four to forty-eight hours' incubation. The organism does not grow in plain broth and shows only slight growth in hormone broth.

For quick growth of the organism, ascitic fluid broth and blood broth are the most satisfactory mediums. Clotted rabbit's blood is to be preferred for preserving cultures, as the organism is viable in such a medium for as long as four weeks if kept at icebox temperature. Cultures in blood broth die in from ten to fourteen days, and in ascitic broth the organism cannot be consistently recovered after five or six days.

On solid mediums it does not grow aerobically and shows scant growth under anaerobic conditions. An abundant growth is obtained by using a method described by Parker and Hudson. A transplant on solid mediums is placed in a jar with a burning candle. The jar is then sealed off so that it is air tight and the candle flame dies out. The atmosphere so produced seems to be of an optimum physical and chemical composition for growth. By such means it is possible to grow the organism on ascitic fluid agar, on blood agar, and on a medium composed of glycerin, extract of potato and infusion broth with egg yolk added. Loeffler's medium

3. Credit is due to Miss Marion E. Lamb for first demonstrating the organisms in blood culture.

is unfavorable. On solid mediums the organism grows as an opalescent, round, slightly raised colony from 0.1 to 0.3 cm. in diameter. When scraped from the surface, it appears white and mucoid, stringing out and easily rolling off the loop.

The organism is fairly sensitive to variation in hydrogen ion concentration. The optimum lies between p_H 7.4 and p_H 8.0.

Oxygen and Carbon Dioxide Relations.—As indicated, the organism is neither strictly anaerobic nor aerobic. The fact that it grows only at the bottom of the tube in liquid mediums indicates its partial anaerobic tendencies. Successful growth on solid mediums only in a candle jar likewise argues for a carbon dioxide-oxygen tension differing from either strictly anaerobic or aerobic conditions.

Sugar Reactions.—Ascitic fluid broth and hormone broth were acidified by the organism and therefore could not be used in determining the sugar reactions. However, a simple medium composed of peptone water (peptone 1 per cent, sodium chloride 0.5 per cent), with 10 per cent ascitic fluid added, furnished a medium rich enough for growth and showed no appreciable change in hydrogen ion concentration. Controls were set up as follows: (1) twelve uninoculated tubes, each containing the medium with 1 per cent of the various sugars used added and (2) one inoculated and one uninoculated tube containing the medium only. With phenol red as an indicator, the control tubes were unchanged after incubation. All changes in the inoculated sugar tubes, except for starch and dextrose, lay between p_H 6.6 and p_H 7.0. In the tubes containing these two sugars the p_H was reduced to about 5.2, as indicated by methyl red. Acting on levulose, dextrose, maltose and starch, the organism formed acid at the end of forty-eight hours, while the p_H of tubes containing inositol, sucrose, xylose, glycerin, rhamnose, lactose and inulin was unaffected. No further change was observed at the end of three, four, six or ten days' incubation. A second series of sugars gave similar results.

Virulence.—In studying the virulence of the organism, white mice and rabbits were utilized. White mice injected intraperitoneally with twenty-four or forty-eight hour cultures died within two to seven days. The amounts used varied from 0.5 to 1 cc. of blood broth or ascitic fluid broth cultures. Postmortem examination of animals dying from two to three days after inoculation was negative. In those surviving from five to seven days, lesions were found in the conjunctiva, pericardium, pleura and mediastinum. A purulent conjunctivitis began on the second or third day after inoculation and was preceded by a period of probable photophobia during which the mouse kept its head buried in the sawdust on the floor of the cage when exposed to the light. The lesions of the anterior mediastinum and pericardium consisted grossly of a collection of purulent exudate. Microscopic examination revealed a collection of polymorphonuclears, serum and some fibrin on the surface of the pleura and pericardium. Short, slender gram negative rods were seen in smears of the exudate.

No joint lesions could be produced by intraperitoneal injection. When 0.3 cc. of a twenty-four hour culture was injected into the joint of one mouse, it survived for seven days and then died, showing typical lesions of the eyes, mediastinum and pericardium. The joint injected was swollen and contained a quantity of thick white purulent exudate. Microscopically, it showed a collection of polymorphonuclear leukocytes and serum over the synovial surfaces. No organisms were demonstrable on smear.

Two young rabbits weighing from 900 and 920 Gm., respectively, were inoculated intraperitoneally with a twenty-four hour growth of organisms in 100 cc. of bouillon, which had been centrifugated and resuspended in 10 cc. of saline solution. Three such injections at intervals of forty-eight hours failed to produce any lesion or symptom.

Agglutination Reactions.—Agglutination tests carried out with the patient's serum and the organism were positive in dilutions of 1:640, during the second week after onset. The bacterium did not agglutinate in normal human serums.

Two strains of proteus X19 failed to agglutinate with the patient's serum in any dilution.

Agglutination reactions carried out with the serum of the patient and B. typhosus and organisms of the B. paratyphosus A and B groups were negative.

Classification.—In respect to the classification of the organism we would concur with Parker and Hudson, who state that it seems to belong in the order Actinomycetales, in the family Mycobacteriaciae and consider it as a new genus, Haverhillia multiformis.

COMMENT

Organisms similar to or identical with the one we isolated have been reported in the literature from time to time in the past, but in most instances the bacteriologic studies are so brief that exact correlation of characteristics is not possible.

Levaditi, Nicolau and Poincloux [4] were the first to describe in detail an organism which, except for minor details, is identical in morphology and growth characteristics with the one isolated in this case. Smears of the organism have been declared identical by Levaditi. Clinically, their case was like the one we have described.

The organism studied by us shows the same characteristics as the one described by Parker and Hudson, and the cases reported by Place, Sutton and Willner presented a similar clinical picture.

Blake,[5] from a case showing the clinical symptoms of rat bite fever (Sodoku) and history of rat bite, isolated an organism which he called a streptothrix but which resembled both morphologically and culturally the organism isolated by us. Schottmüller [6] earlier had isolated a similar organism from two cases, one following a rat bite, the other a squirrel bite. From a case of rat bite fever, MacKie and McDermott [7] obtained from blood culture an organism similar to that described by Blake, which agglutinated in the patient's serum in dilutions as high as 1:1,250. However, several days later by injection of tissue from a lymph node into a guinea-pig, they were able to isolate the Spirillum minus of rat bite fever. They considered the first organism as probably a secondary infecting bacterium. It is possible that the organisms isolated by Blake and Schottmüller from cases clinically resembling rat bite fever were of a similar nature. Other

4. Levaditi, C.; Nicolau, S., and Poincloux, P.: Recherches sur l'étiologie de l'érythème polymorphe aigue son agent étiologique; Streptobacillus moniliformis, Compt. rend. Acad. d. sc. **180**: 1188, 1925; Presse méd. **34**: 340 (March 17) 1926.

5. Blake, F. G.: The Etiology of Rat Bite Fever, J. Exper. Med. **23**: 39 (Jan.) 1916.

6. Schottmüller, H.: Aetiologie und Klinik der Biszkrankheit, Ergängungsheft zu Dermat. Wchnschr. **58**: 77, 1914.

7. MacKie, T. J., and McDermott, E. N.: Bacteriology and Experimental Observation on a Case of Rat Bite Fever: Spirillum Minus, J. Path. & Bact. **29**: 493 (Oct.) 1926.

reports of organisms, which in the brief descriptions available seem to resemble Haverhillia multiformis and which were isolated from cases that were clinically rat bite fever, have been given by Ebert and Hesse,[8] Tunnicliffe and Mayer,[9] and Litterer.[10] Tileston[11] observed a bacterium resembling Blake's organism in the blood stream but was unable to grow it from blood culture.

Proof of the etiologic rôle of the organism in our case is based on its isolation from three successive blood cultures and its agglutination in the patient's serum. Furthermore, the clinical resemblance of our case to similar cases from which an identical organism has been isolated gives further proof that Haverhill fever is a clinical entity with a definite bacteriologic etiology.

The source of this infection is unknown. In our case no suggestion could be obtained. Parker and Hudson, and Place, Sutton and Willner thought it might be milk borne, and their assumption was supported by the fact that each patient with the exception of two in the Haverhill epidemic used milk which came directly or indirectly from the same dairy. However, bacteriologic proof was lacking as the organism grew poorly in milk, and all attempts to produce an infection in a cow proved unsuccessful. Levaditi and his co-workers[12] recently isolated an organism that occurs spontaneously in mice and described it as resembling the organism that he isolated from a case in 1925. Inoculation of mice produced gross lesions similar to those produced by us.[13] However, a strain of the organism given us by him failed to agree with either the growth or the morphologic characteristics of our organism.

The isolation of a definite organism from the circulating blood of patients having a similar clinical picture establishes "Haverhill fever" as a clinical entity. The organism has such specific characteristics that, even in the absence of an antiserum for carrying out a serologic diagnosis, its identification is possible.

8. Ebert, B., and Hesse, E.: Zur Klinik und Bakteriologie des japonischen Rattenbiszfiebers (Sodoku), Arch. f. klin. Chir. **136**: 69, 1925.
9. Tunnicliffe, Ruth; and Mayer, K.: A Case of Rat-Bite Fever, J. Infect. Dis. **23**: 555 (Dec.) 1918.
10. Litterer, William: A New Species of Streptothrix Isolated in a Case of Rat Bite Fever, J. A. M. A. **68**: 1287 (April 28) 1917.
11. Tileston, Wilder: The Etiology and Treatment of Rat Bite Fever, J. A. M. A. **66**: 995 (April 1) 1916.
12. Levaditi, Constantin; Selbie, F. R., and Schoen, R.: Les arthrites du rheumatisme polyarticulaire spontané de la souris provoqué par le Streptobacillus moniliformis, Compt. rend. Soc. de biol. **103**: 1193 (May 1) 1930. Levaditi, Constantin; and Selbie, F. R.: Mode de transmission de l'érythème polymorphe aigue epidemique, Compt. rend. Acad. d. sc. **189**: 1332, 1929.
13. Levaditi, Constantin; Selbie, F. R., and Schoen, R.: La myocarditie dans le rheumatisme polyarticulaire de la souris provoqué par le Streptobacillus moniliformis, Compt. rend. Soc. de biol. **103**: 463 (Feb. 21) 1930.

Conversation with a Patient.—Often the busy doctor feels he has no time to spend long hours in conversation with a patient but occasionally such an interview might obviate much suffering, as well as many visits to the office or to the patient's home. Too often this form of approach is replaced by the deftness of craftsmanship, and the use of ingenious tools is substituted for a thoughtful consideration of the problem. If such serious symptoms may arise solely from emotional disturbances, consider, for an instant, the deplorable plight of the poor fellow who has to wrestle, not only with an organic disease, but with his emotions as well. For, I suppose, it is fair to say that no patient suffering from an organic disease, unless his mind be clouded, is free from more or less emotional strain. Whether this depends on the readjustments made necessary by his actual state of illness, or whether it depends on a misinterpretation or improper estimate of symptoms, the emotional strain becomes an actual part of the disease, and has a definite bearing on its course.—Longcope, W. T.: Methods and Medicine, *Bull. Johns Hopkins Hosp.* **50**:4 (Jan.) 1932.

THERAPEUTIC METHODS IN A PSYCHIATRIC HOSPITAL

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It is a frequent experience to have a medical confrère ask, "What do you do for your patients in the sanatorium?" This question would be asked only about a hospital for patients with mental disorders. All physicians are well acquainted with measures of treatment in the general hospital, but to most of them hospitalization of patients with mental disease means only diagnosis and custody. It is my purpose in this paper to report the therapeutic measures used in a modern psychiatric hospital where my associates and I are attempting to put into practice the principles of dynamic psychiatry.

A patient comes to the hospital not with symptoms, but with problems. What can be done for him? It is not sufficient that he be made physically comfortable; rest and freedom from responsibility alone will not satisfy his psychologic needs. His problems must be studied intensively, interpreted and a solution attempted. This solution can be worked out in two ways: first by the creation of an environment in which the patient can function with more ease than in that from which he has come, and second, by the establishment of a series of scientifically controlled friendships in the course of prescribed therapy.

ENVIRONMENT

From the moment the patient enters the hospital we attempt to provide for him an environment suited to his needs and wishes, i. e., to *him*, rather than to adapt him to the institution. The hospital with all its necessary prohibitions and restrictions, paradoxically, must also permit an opportunity for freedom and an outlet for expression. It must protect the patient from the world and often from himself, and simultaneously create an atmosphere of confidence and reassurance. Above all, it must be a highly organized, efficient institution, and at the same time conceal the organized efficiency and the impersonal institutional air.

Individual differentiation in the manner of the patient's reception and management in the hospital is a large factor in his subsequent improvement. Such individualization is possible only through recognition of the emotional plight of each patient. H. K., for example, a college student, entered our hospital with the delusion that he was in hell; he was tense, mute, fearful and extremely sensitive. In view of this, the nurses were specifically instructed to take frequent occasion to explain his new surroundings in reassuring terms. Extraordinary care was taken to prevent any shock that would aggravate his mental distress. On his first visit to the woodworking shop it was noted by the occupational therapeutist that he shrank from the harsh noises of the saw and the hammer, and that his anxiety was intensified when he was in proximity to one of the workers who was using a crowbar. For this reason basketry work in his room was prescribed until his social reintegration permitted him to return to the workshop.

J. N., to cite another example, a middle-aged minister, came to the hospital loathing himself, "a God-forsaken sinner," unworthy and intolerant of any kindness. He

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was eager to abase himself before everyone and rejected all sympathy because of his strong introjected hostility, and his consequent feelings of guilt and of the need for punishment. No attempt was made to probe into his difficulty at first, and no obtrusive attention was given him. Opportunity was provided for him to work out his craving for punishment in washing walls, splitting wood, polishing floors—anything that gave him an opportunity to serve. He was helped most by a kind of severe kindness which afforded him relief for his acute sense of guilt. Standardized cheer and consolation, a so-called ideal environment, would only have pushed this patient into deeper depression, because it would have intensified his feeling of unworthiness.

H. W., a powerfully built, middle-aged, prosperous farmer, came to the sanatorium believing all was lost, his family starving, hospitalization foolishness and suicide his only solution. Flowers and sunshine, a cheery nurse and reassuring words would have nettled this man and confirmed his arguments that hospitalization for him was "expensive foolishness." Instead of catering to his discontent, his disgruntled arguments and negativistic unsocialness were ignored, and attention was given him only when he entered into activities of the hospital and followed his program. In other words, a premium was put on his cooperation. For instance, at the weekly picnics he would attempt to draw off the doctors and recite his grievances. These attempts were good-naturedly thwarted by putting him at second base on one of the baseball teams composed of doctors, nurses and employes, as well as the other patients. Discovering that he could not obtain attention except by cooperating in the affairs of the hospital, he developed a more conciliating attitude, which eventually made possible his recovery.

Quite a different method was used with H. Mc., who was encouraged to express himself as fully as possible within the limits of safety for himself and others. This patient was excited, talkative and demanding; food and sleep were unimportant in his hyperkinetic state. He asserted, on entering the sanatorium, that he was just in time to receive a spiritual revelation from the God-Head, which must be told only to a priest. The priest came to the hospital although it was late at night. We felt that it was better to give him some harmless outlet for his expansiveness rather than the customary drug sedative. He wrote reams of copy, and finally called for a typewriter on which he transcribed the History of the Bible, and the Epistle of the Thirteenth Apostle (as he called himself).

No discouragement or disapproval clouded this discharge of energy. Care was taken not to give this patient any invitation or opportunity to follow his conscious desires to do violence or to escape, which were obviously in conflict with his unconscious desires to be held in restraint. He sometimes begged for this restraint, as, for example, when during intravenous treatment he would ask an attendant to hold his arm lest he harm some one. As much freedom as possible was permitted him to carry out his wishes, with such modification as this supporting restraint to his nearly obliterated super-ego made necessary.

Thus, instead of supplying a uniform environment, which seems comfortable to us as healthy persons, the hospital furnishes each patient with an environment that he can accept with greater ease and comfort, because it allows him to express himself at a simpler level than that of the reality from which he has taken flight in his illness.

In providing him with this tolerant, friendly haven, we find that the less the patient is reminded that he is separated from the outside world by prohibitions and restrictions, the more his readjustment is expedited. Consequently, as soon as the patient's progress permits, he is graduated from the hospital to the sanatorium, a separate building, where he is free from all restrictions except the friendly supervision of doctors and nurses.

It is not our purpose, however, to maintain the mentally sick patient in this individualized environment indefinitely. The process of recovery requires that he gradually win his way back until he is able to leave the artificially created atmosphere and reenter the world of reality. He might be content to rest forever in this (for him) comfortable state were it not for the emotional response which he develops toward the persons who provide this haven for him and who minister with such understanding to his wishes, conscious and unconscious.

SCIENTIFICALLY CONTROLLED FRIENDSHIP

This emotional response, which we think of as scientifically controlled friendship, we regard as the chief factor in the process of recovery. The hospital building and all the materialistic armamentarium are of little importance as compared with the personality relationships that exist between the patients and the members of the staff. Every doctor is familiar with the part that confidence plays in the treatment of his patients, and he is aware also of the influence, adverse or favorable, of relatives and friends on his patients. This familiar principle has been capitalized, elaborated and greatly reenforced by making it a matter of study and practice for not only the doctors and nurses but every employee of the institution. Every member of the personnel is interested not only in carrying out his particular routine function, but also in contributing something personal to this ruling principle. For example, the chef, who, in addition to being a good cook, is an expert tennis player, supervises the maintenance of the tennis court and plays regularly with the doctors and patients. The girls who work in the kitchen and dining room are among the best of the baseball players, and hurry through their work to participate in games.

This attitude on the part of the employees is secured, first, by extremely careful selection. Throughout the entire institution the employees must be of a superior type, people with whom the patients can associate without reluctance. Greater stress, however, is laid on the training of the employees after they become associated with us. Graduate nurses rarely obtain in their general hospital training an adequate understanding of the psychologic problems involved in the treatment of mental illness. Hence, education in psychiatric principles and the psychodynamic point of view is even more important than their general hospital training in developing the technic of tactful understanding of the delicate and subtle requirements of psychiatric nursing.

This process of education continues for the nurses and attendants as long as they are employed in the institution. An average of one hour daily is allowed them to attend lectures, conferences and study groups, and to prepare notebooks and to read and review selected books and periodicals from the hospital library.

The educational program includes training for not only the nurses and attendants but to a somewhat less technical degree all employees, including the kitchen help and office force. In addition to didactic work in psychiatric principles, these persons as well as all other employees attend regular conferences which integrate

policies and activities of the group. As a result of this continued and intensive training, the whole staff of the institution is permeated with this spirit of cooperation and sympathetic insight into the aims of the hospital and the methods of carrying them out. They are thus prepared to apply the therapeutic principle of scientifically controlled friendship to the patients.

THE DAILY SCHEDULE

To be most effective this principle must be carried out in a systematic way, with specific application to the needs of each patient. To insure this, a schedule of assigned activities is written out and given to each patient at the beginning of each week. This not only informs the patient that he is being given individual consideration, but also maintains a continued plan of prescribed therapeutic attack. Preeminently, however, it gives opportunity for successive personal contacts through the prearranged scheduling of the various therapeutic tools of occupational therapy, recreation, physical therapy, reading, music and other creative efforts, rest, psychotherapy, study groups, etc. The friendly relationships which the patient forms in the course of his schedule transforms this daily plan from a progression from one unrelated unit of treatment to another into a continuous process of treatment facilitated by varied occupations. For example, Mary B's schedule on Wednesday at 10 o'clock reads "Occupational therapy—sewing on a quilt"; but Mary reads into this something far more personal and satisfying, because her doctor, who is interested in ships, drew for her pictures and diagrams of the many kinds of sailing ships. These Mary painstakingly traced on cloth of her own choosing and cut out white sails and appliquéd them on a blue sea with infinite care and devotion. This project was artistically conceived and executed by the patient as a gift for her doctor. The work began while she was lying listlessly in her bed, depressed and weeping, but as the quilt progressed, it necessitated contacts with other people; she must choose materials and use the sewing machine; finally she began to enter into the other activities of the hospital. Thereafter, her progress was rapid.

This whole plan of treatment is a continuous form of psychotherapy. It depends initially on the physicians' understanding of the patient's conflicts gained through frequent personal conferences. These interviews are not the casual contacts established in ward rounds, but are scheduled appointments.

The value of friendliness, kindness, personal attention and encouragement are recognized intuitively by almost everyone, but their scientific application as therapeutic tools is surprisingly rare. In our experiments and investigations we have attempted to carry this principle into all departments and to animate the patients' work with its purposive stimulus.

RECREATION

Organized recreational activity is a particularly effective medium for the application of this method of treatment. The director of recreation, who gives his full time to this work, skilfully leads the patient to express an interest in some sport or hobby which is utilized in developing a friendship, then in drawing the patient into some activity and finally in bringing him into a social situation in which he cooperates with other players. Thus, by an indirect method of free play, the patient is enabled to suspend temporarily, in varying degrees, his own intrapsychic conflicts and to accept a form of reality.

Our experiences, as well as the reports of other hospitals, have led us to believe that the chief therapeutic value of athletics is the social value, especially in a hospital where men and women mingle in games and contests. This adds a powerful socializing influence not possible in institutions limited to one sex or where the sexes are kept separate.

We have found it satisfactory to have both men and women play together on the indoor baseball teams which include practically every patient and every member of the staff. Although this is a group activity, its benefits can be specifically adapted to the individual. In the case of H. K., for example, baseball afforded him an opportunity to show some superiority. This patient's fantasy material showed that he had taken refuge in flight from reality because of his profound feelings of inferiority. He had visions of himself as God, the All-Powerful. It was discovered that although he had only one hand, he could catch more balls and knock more home runs than almost any other player. In this situation, H. K. was able to excel in reality and had no need to fantasy himself as successful.

Depending on their condition, the patients are encouraged to become captains of teams or directors of activities. The manner in which the responsibility therapy is applied is shown in the case of E. R., an apathetic, depressed hypo-active girl, who irregularly and without interest took part in the morning setting-up exercises. She was delegated to lead them, and immediately sought a book of instructions in the library, asked for suggestions from various members of the staff and assumed an active, aggressive leadership.

Many similar examples of how group recreation is applied to the individual problem could be cited. In order to interest every patient, a wide diversity of activities, including golf, tennis, croquet, shuffleboard and volley ball as well as many indoor games and contests, are scheduled. Swimming has been prescribed to overcome muscular rigidity, incoordination and negativism, with gratifying results.

In addition to the parties which are specifically prescribed, a patients' club functions weekly with a program consisting of a presentation of some interesting topic by one of the patients. This may be the elaboration of a current event, perhaps a description of the patient's business, occasionally the presentation of a hobby, a review of a new book or perhaps a musical program. This necessitates a certain amount of integration and membership and is considered a privilege. In the same way, outings, attendance at church, picture shows, lectures or concerts are prescribed as indicated by the individual's needs and preferences.

READING

Our experience with the prescription of reading extends over the last year. We are accumulating some data in this virgin field of therapeutics and are conservative in attempting to estimate results to date. The cardinal principle is the prescription of specific reading material rather than letting the patient pick up something at random or, as is more often the case, to do no reading at all. In a few instances the patient is asked to write a review of the assigned material. The books are chosen for their interest to the patient from what we know of his background and hobbies, and if possible for the therapeutic content. We have experimented with a good many types of magazines, fiction, biography, poetry and to a considerable extent with mental hygiene literature.

For many weeks after her admission, a hypomanic patient repulsed our psychotherapist, regarding his attempts to gain her confidence as a repetition of what she called the insincere attitude of her double-crossing relatives. Finally, he brought her a copy of Moby Dick and discussed with her at some length his interest in the story and its significance as an allegory. A few days later with self-deprecating bravado she gave him a longhand copy of the chapter called "The Lee Shore," with the explanation that she had awakened early one morning and copied it because she liked it so much. In that eloquent chapter she found a sympathetic description of her own flight, which relaxed her resistance and allowed a positive transference to begin.

OCCUPATIONAL THERAPY

Occupational therapy is almost as old as psychiatry, but much that has gone under that name has little or no therapeutic value. Work in the ward, including the care of the rooms, kitchen and laundry, and farm work may have a therapeutic value in isolated cases, when individually prescribed, but in general their use is of advantage only to the hospital administration. By no stretch of the conception can occupied time be considered as synonymous with occupational therapy.

The occupational therapist in the hospital follows the same procedure as was described for the recreational director, in first interviewing the patient at the earliest opportunity to determine his interests and capabilities. Then after consultation with the physician, the prescription is written for the patient, but it is through the personal influence of the therapist and the physicians that the patient is brought to attempt the work. We believe that the benefit to be derived from handicraft, aside from the socializing influence of the workrooms, is the opportunity of expression it affords the patient. This must be individualized to suit the requirements of each one: the schizophrenic patient finds in his work a contact with reality; the manic patient uses it as a propitious outlet for the discharge of energy; the introspective patient is given an opportunity for extraversion, and the sadistic patient works out with tools his antisocial impulses. We have found that it is of tremendous value to a patient with fragmented psyche to produce something, which, trivial as it may be in itself, represents to him a valuable personal contribution.

To recognize this, the occupational therapist must have a knowledge, not only of arts and crafts, but also of the psychiatric point of view. The physician too often regards the occupational therapist as just another attendant, and her teaching as an unimportant form of pastime for the patients. He should not only lend his active support, but should inform himself of the field, so he may intelligently prescribe specified types of occupation and evaluate their success in his patients.

MUSIC

Our experience with music as a part of the treatment has led us to conclude that in many instances it is not applicable (certain people have no musical interest or ability) and in other instances it is certainly detrimental (in hypomanic states and certain depressions in which the stimulated associations are too painful). On the other hand, it has proved to be beneficial to the majority of our patients through the opportunity it affords for self-expression and socialization in fireside group singing, instrumental music, quartets and solo work. This benefit has been most noticeable in persons convalescing from cyclothymic states, in reversible schizophrenic patients and in some psychoneurotic patients. In several instances we have provided instrumental training for unsocial schizoid persons, with improvement in their mental status and a fair degree of success in their musical efforts.

SPECIAL ACTIVITIES

The close personal relationships which the patient forms and the awakening interests which arise from them often result in rather novel departures from the customary procedure. The benefit derived from these special activities in individual cases more than warrants the additional supervision and planning which they require from the personnel. Provision, for example, is often made for patients to attend public lectures and entertainments, to organize nature study groups, to study French or stenography. In several instances, arrangements have been made for patients to take class work at a local college or the high school. Members of a boy scout troop in the city have been very cooperative in including some young male patients in their activities and in encouraging them to participate in swimming, boxing, etc. A college student has been employed to devote several afternoons a week acting as a companion and observer to a schizophrenic, unsocial, erratic lad about his own age.

Creative activities, such as sketching, painting and writing, are encouraged, with gratifying results, therapeutically if not always artistically. The preparation of a marionette theater has lately occupied the attention of a large proportion of the patients.

PSYCHOTHERAPY

All of the procedures described, rightly administered, gain their ends because of the psychiatric principles involved and are therefore a kind of psychotherapy. This, however, does not mean that more systematic technics of psychotherapy should not also be used. It is my conviction that every patient in a psychiatric hospital is capable and deserving of psychotherapy of some sort. For a few, the standard procedures of freudian psychoanalysis are desirable.

PHYSICAL THERAPY

These principles of treatment do not make it possible to dispense with the well established technics of physical, chemical and electrical therapy. Rather, they make these more effective, for the psychologic effects of the personal attention and physical manipulation are probably more beneficial than the physiologic effects.

Physical therapy is an assigned prescription for every patient daily. The modern psychiatric hospital is equipped with a hydrotherapeutic department for sedation, stimulation and elimination; with diathermy for the treatment of paresis; with provision for special dietary methods, and with necessary drugs, and the usual medical and surgical supplies and instruments. But chief reliance must not be placed on these, for the treatment of functional mental illness by physical devices is as illogical and unscientific as it is experientially futile.

SUMMARY

It has been the purpose of this paper to describe the modern hospital treatment of mental illnesses, a treatment based on the understanding of the psychologic conflicts of the maladjusted patient. The method consists in the establishment of an environment adapted to the individual patient's needs, which will give him greater comfort and freedom of expression than that from which he has come, and in the arrangement of a connected succession of personal contacts with under-

standing persons with whom the patient develops rapport in the course of a daily schedule of therapeutic activities. This relationship is capitalized in encouraging the direction of the patient's energies into more productive channels and, finally, in bringing about the carefully graded separation of the patient from his dependence on these aids and the facilitation of his return to the home environment by improved understanding.

ABSTRACT OF DISCUSSION

DR. F. GARM NORBURY, Jacksonville, Ill.: If something were not wrong with the ability to adapt to home, business and social life there would be no occasion for entrance for treatment in this field. The underlying situation and the precipitating cause in association with the physical condition demand first attention. Then, based on these conclusions, comes the plan for treatment. Perhaps this feeling may be best stated thus: A knowledge of the mental mechanisms involved plus the embodiment of the principles laid down in Weir Mitchell's "Doctor and Patient" and Peabody's "The Care of the Patient" have meant more in formulating such a plan than anything else. The organization carrying out the details of such a procedure is a most important part of such management. Close clinical supervision coupled with nursing experience means much for individualization. This is one of the main justifications of a private sanatorium. The opinion may be expressed that the apparently casual yet well considered conversation on the part of an experienced masseur or masseuse during a massage is often more valuable than the actual manipulation itself. The psychiatrist must know just what the situation and needs are with each particular case, how much has been accomplished and what direction the next approach must take. He must have acquired the art of approach and suggestion. He can then make use of the various measures described by Dr. Menninger. Knowledge, art, tools—these three cannot be separated when therapy is considered. Grasp and insight in the psychotic, poise and well considered emotional response in the neurotic come from the establishment of normal chains of thought and of normal outlook. They come from the development of or restoration of confidence; from the ability to see things as they are, to meet things as they exist. The actual coming is more often the result of personal effort and conversation by the physician than anything else. Any type of therapeutic aid which he can employ to help in the preparatory stage is of value and should be utilized in the way Dr. Menninger has described.

DR. THOMAS J. HELDT, Detroit: Successful response to the therapeutic aids to which Dr. Menninger has called attention is largely dependent on individualization and personalization, not only on the part of the patient but also on the part of the physician and other hospital employees. The importance of these aids is such that they may well be extended to general hospitals in which nervous and mental patients are treated. I have had some nine years of experience in applying to patients in such a general hospital most of the therapeutic measures mentioned. I can corroborate their effectiveness, so clearly outlined in the cases reviewed by Dr. Menninger. I would emphasize that in the carrying out of these therapeutic aids repeated call is made on lay personnel, some trained, some semitrained, and still others largely untrained. In this regard I have found it advantageous to arrange ten-minute explanatory talks daily by the floor physician to orderlies and maids and to others of the lay personnel mentioned. I have found also that the bringing of a nervous and mental patient into a general hospital is in itself an environmental setting of importance. The helpfulness of such setting is reflected not only in the favorable reactions of the patient but also in the newly conditioned responses of the hospital superintendent, the lay personnel and our medical associates.

DR. GEORGE S. JOHNSON, Denver: I should like to direct attention to the point Dr. Menninger made about the individualization of the patient. In general hospital experience one finds that the patient comes into the hospital and at once feels he has a physician who is attending him, but in the psychopathic hospital and in the psychiatric institution the tendency is to feel that he is in the hospital for the time being and is merely waiting for the time when he can go out, and that recovery is a matter of time. Dr. Menninger has called attention to the systematic application of the contact he makes in the hospital. I find in the hospital in Denver that the explanation of the dynamic concept not only to the patient but to the entire personnel is of great value in creating that which Dr. Menninger has brought out in his paper.

LABORATORY INVESTIGATIONS AS AIDS IN OTOLARYNGOLOGIC DIAGNOSES

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The cytologic examination of the nasal discharge is, in my judgment, an important procedure with every patient with a nasal lesion. I should feel that my examination was incomplete if this had not been done. The cytologic examination of the discharge from the ear, while not so important, has a distinct advantage. If on examination of the nasal discharge it is found to be almost all mucus with very few cells, that means one thing; if the fluid contains practically no mucus, as in cerebrospinal rhinorrhea, that would suggest another thing. The presence of many polymorphonuclear neutrophils in the discharge taken from the neighborhood of the ostium of the sinus indicates infection. Even to a layman the presence of pus cells will mean something. When red blood cells are found they have clinical significance. The presence of degenerated epithelial cells without any blood cells is of decided clinical significance.

Certainly it is of great importance to have information regarding the number of eosinophils present in the nasal discharge. While the increase in the eosinophils does not necessarily mean an allergic condition or the absence of eosinophils exclude allergy, the presence or the absence of these cells is suggestive. Only a few cases that we have seen with a marked nasal eosinophilia have proved not to be allergic. Many cases in which there has not been an increase in eosinophils have been found to be allergic. Repeated examinations of nasal smears will often reveal a marked increase in the eosinophils which was not present on former examinations.

The cytologic examination of the discharge from the ear should be made at the time of myringotomy if possible. When macroscopic blood is secured at myringotomy, a cytologic examination may reveal many polymorphonuclear neutrophils. The presence of these cells in the blood indicates an otitis. The state of degeneration of the polymorphonuclear neutrophils found in the discharge from the ear suggests the severity of the infection. The greater the degeneration of these cells, the more active is the process as a rule.

In a large number of patients with purulent otitis, many eosinophils have been found in the nasal and nasopharyngeal discharge, but as yet we have not discovered a discharge from the ear with many eosinophils.

The discharge from the nose is examined by taking a cotton carrier and touching the neighborhood of the ostium of the sinus. The material adhering to the cotton is spread on a slide so as to leave strands of mucus

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on the slide, if some are present. The strands of mucus in the nasal discharge act like fish-nets and collect the cells that are present in the discharge. Similar preparations are made from the ear, the discharge being taken from the myringotomy wound immediately following the incision of the drum head or from a perforation in the drum head.

The film on the slide is gently fixed with heat, the slide is flooded with Wright's stain for one minute, an equal quantity of buffered distilled water is added for three minutes, and the slide is washed with distilled water and air dried and is ready for microscopic examination. It is important to know that the Wright's stain is perfect. This stain deteriorates in a few weeks. Only stain that is known to be good by actual test should be used; otherwise, the results will be disappointing.

Fluid that is aspirated may be examined in the same way, or it may be examined as are the washings from the sinuses and from chronic discharging ears. The fluid secured is placed in a container and thoroughly shaken in order to separate the cells from the strands of mucus. The material is then placed in a centrifuge tube and centrifugated for a few minutes at a slow speed. This precipitates the mucus threads, but does not throw down the cells. The fluid is decanted, placed again in a centrifuge tube and centrifugated at a rapid speed for two or three hours. This precipitates the cells as a compact mass in the apex of the centrifuge tube. The fluid is drawn off and the precipitated mass hardened with formaldehyde. Before the fluid is placed in the tube, a flattened wire bent to fit the bottom of the tube is inserted so that the mass is in the bend of the wire. After the mass is hardened it can readily be removed from the tube by means of this wire. It is then mounted in paraffin and sectioned and stained as tissue.

It has happened that in a case of an unsuspected malignant condition in a maxillary sinus, groups of cancer cells were found by this method. This made the diagnosis of carcinoma.

When the washings in cases of otorrhea are studied, some of the material precipitated should be examined under the microscope for cholesterol crystals before it is hardened. The presence of cholesterol crystals plus fatty degenerated epithelial cells makes the diagnosis of cholesteatoma. This procedure often reveals the presence of cholesteatoma which was not found by examining the fluid without centrifugation.

The chemical test for cholesterol on the discharge from the ear in chronic purulent otitis media is still an uncertain procedure. The fluid from acute otitis gives the reaction. The exact quantitative test indicative of cholesteatoma has not been determined. Chemical tests have the advantage in that they determine the presence of amorphous cholesterol as well as the crystals.

Roentgen examination of the nose and ear has become an important factor in diagnosis. My impression is that roentgen examination has been at least sufficiently emphasized. To me a thorough clinical history and an excellent examination are far more important than the roentgen procedure. At any rate, in nasal sinus disease one is not justified in making a diagnosis of an infection of the sinuses because the roentgenogram shows that the lining of the sinus is thickened. The lining of a sinus is often thickened because of an allergic condition, and in the early stages of nephrosis the thickening is due to a pure edema which is part of the generalized edema of the patient. Roentgen examination of the nasal sinuses together with a cytologic study of the discharge should give definite information. Certainly, many patients who were thought to have infected sinuses requiring radical operation have been treated successfully by conservative treatment when the cytologic study plus the history has shown that a thickened lining was an edematous process and not an infected membrane.

In infants and young children I have the roentgen examination made first. This is done to determine whether or not a given sinus is present, and, if present, whether or not it has clinical significance on an anatomic basis. Years ago Dr. Mosher remarked that nasal sinuses in children were precocious. In older children and in adults roentgen examination is of the greatest help in clearing up obscure points regarding pathology. It should be made only after the securing of a thorough history and after a careful clinical examination. For many years some of us did laryngologic work without the use of the x-rays, and by means of a good history plus a thorough study of the case we made an exact diagnosis. Perhaps our patients were better off than those who are now operated on, because an x-ray picture shows a slight thickening of the lining of the sinus. At any rate, the x-rays should be used to clear up those points in diagnosis which are not definite after a thorough clinical examination has been made. The roentgenologist should have before him the history and clinical findings and a statement of the information that is desired.

Certainly x-ray pictures of the maxillary sinuses are bound to be misleading unless their interpretation is helped by a good history and a clinical examination.

Differential examination of the blood, particularly with the Schilling method in otolaryngologic cases, is a procedure that should be done by experienced persons. The recognition of cell types and the evaluation of the differential blood count require technical as well as clinical experience. A proper differential count of the blood may in itself make the diagnosis. In the study of infections, it may be the deciding factor as to whether operation is necessary or whether it should be deferred.

It should be remembered that the otolaryngologist sees not only cases of agranulocytosis, but rarely cases of infectious mononucleosis and more commonly cases of lymphatic reactions following infections about the nose and throat. He also sees cases of myeloblastic leukemia, aplastic anemia, myelogenous leukemia and lymphatic leukemia. The early symptoms of these diseases may manifest themselves first in the throat.

Ulcerative as well as hemorrhagic lesions in the nose and throat may be only symptoms of a primary blood dyscrasia, the diagnosis of which is possible only by a careful differential blood count.

Agranulocytosis is a disease characterized by marked depression of the granular elements in the blood with marked leukopenia. There are various theories as to its cause, and one is that it is a primary disease of the bone marrow with a special predilection for the glandular elements. The diagnosis of this disease can be made only by careful differential studies of the blood. The clinical picture of this disease may not differ from that of myeloblastic leukemia, the main difference between the two being made on a differential count of the blood, which in myeloblastic leukemia shows myeloblasts, whereas in agranulocytic angina there are no blast cells. In the same way, the differential diagnosis between a

lymphatic reaction secondary to infection about the nose and throat and lymphatic leukemia is made by the finding of lymphoblasts in lymphatic leukemia.

Aleukemic lymphadenoses and myeloses can be differentiated only by careful differential counts of the blood. It requires experience to recognize these early cells as lymphoblasts and myeloblasts. In aplastic anemia, the earliest symptoms may be referable to the throat. It is characterized by marked diminution in all three blood elements: leukocytes, platelets and red cells.

Often a diagnosis is made of monocytic angina with a temporary rise in monocytes together with a rise in lymphocytes. This does not constitute a diagnosis of monocytic angina, and really represents only a temporary rise in monocytes, which is not uncommon with infections in the tonsils, and the lymphatic reaction persists longer than the monocytic reaction.

Probably the greatest value in the Schilling differential count of the blood for the otolaryngologist is the study of infections. The interpretation and evaluation of the degree and seriousness of the infection can be best measured by the differential count of the blood. Prognosis is closely associated with differential changes in the blood. An increase in the Stabkernige cells in the Schilling differential count of the blood is a degenerative picture, and in infections of the nose and throat is not of serious moment in itself. With an increase in the severity of the infection, younger cells, so-called Jugendliche cells, appear in the blood stream and classify the picture as regenerative. With further progression of the infection, more serious regenerative pictures are seen, with the presence of myelocytes. When myelocytes are found in the course of an infection, they are always to be considered seriously. The time to operate may be decidedly influenced by a differential count of the blood. The progress following operation or other treatment can be most accurately determined by the differential count of the blood. The onset of complications can also be measured accurately.

In the diagnosis of tuberculous lesions of the nose and throat, the Schilling differential count of the blood, together with the subcutaneous tuberculin test, is invaluable. An increase in the number of Stabkernige cells may be present in any infection and is always present in active tuberculous lesions. Syphilitic lesions, unless secondarily infected, do not show an increase in Stabkernige cells; neither do tumors unless they are infected. In a suspicious tuberculous lesion of the nose and throat, with an infectious blood picture as evidenced by an increase in the number of Stabkernige cells, the blood picture can be modified by the use of tuberculin.

Fig. 1.—Glass sleeve swab protector for collecting nasal smears in position for use. The whole is inserted through a nasal speculum into the nose. The flare on the end of the outer tube protects the inner one from contamination. C. S. Linton.

After the injection of 10 mg. or less of old tuberculin into a tuberculous lesion that is not healed, there is an increase in the number of Stabkernige cells in twenty-four or forty-eight hours, or a drop in lymphocytes. A negative reaction of the blood following 10 mg. of old tuberculin excludes tuberculosis.

As I view it, the exact determination of the blood findings is a procedure that requires experience, both in making the differential count and in its interpretation, and should be done by one trained in hematology as well as in clinical medicine. While the otolaryngologist may be able to make a fairly accurate differential count of the blood in most of the ordinary infections, yet my own judgment is that when it is necessary to depend on blood findings to differentiate between the blood dyscrasias and infection, to determine the exact significance of the blood picture in severe cases of sepsis, to differentiate between lymphatic reactions and monocytic anginas or infectious mononucleosis or to

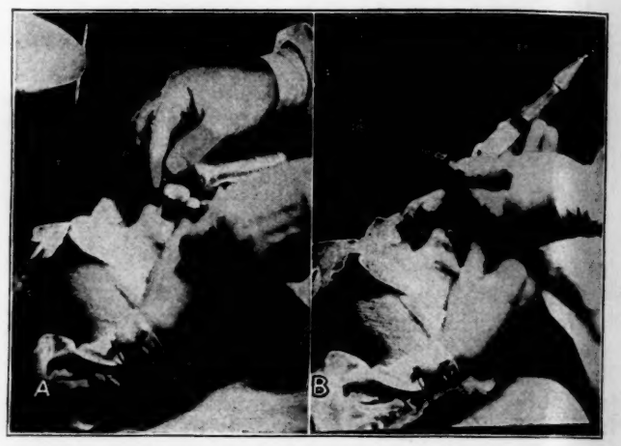

Fig. 2.—*A*, trocar inserted through the inferior meatus into the maxillary sinus. *B*, a Luer syringe attached to the trocar, containing physiologic solution of sodium chloride.

determine the presence of active tuberculosis, one should depend on an expert for the examination of the blood.

The examination of material secured at biopsy should be made by the surgeon who is in charge of the case. The surgeon should be well grounded in pathology. If he has this knowledge, he should be best prepared, because of his clinical conception of the case, to make the diagnosis. Often in diseases of the larynx and even in lesions of the tongue, when they are malignant, the piece secured at biopsy will not show the malignant process. The surgeon would not be led astray by the microscopic picture, but should be guided by the results of his history and examination and make a second or even a third biopsy before coming to a definite conclusion.

If a person is not sufficiently grounded in pathology, he should look at the tissue with a pathologist and give to him the benefit of his clinical knowledge of the case.

In making bacteriologic studies in infections of the ear, nose and throat, it is important to secure the material for investigation in a proper way. The material from the ear should be secured, if possible, at the time of myringotomy. The next best time to secure the material is when and if an operation is performed on the mastoid. Routine cultures of the pus in mastoid cavities give a large percentage of negative results, especially in infants; consequently, pieces of tissue for culture should be sent to the laboratory in addition to the cultures made from the discharge. The specific organism responsible for the infection should be present in the tissues. Such a procedure will almost always give a positive result if the bacteriologic examination is thorough. In the same way, the lining of an infected nasal sinus is the best material from the sinuses for bacteriologic study.

In work on the nose and throat it is advisable to have available to the resident staff an incubator so that the cultures may be prepared immediately.

The objection to making cultures from discharges from the ear after myringotomy or spontaneous perforation is that the contaminating organisms often overshadow and prevent the finding of the real etiologic factor.

It is common to find type III pneumococcus at the time of myringotomy and then to fail to find it in repeated examinations made on the discharge from the ear, and then to find it again at the time of operation on the mastoid.

In making a bacteriologic examination of the nose, it is necessary to use a double glass sleeve containing the cotton on a probe (fig. 1) in order to get the culture only from the point that it is desirable to study. If a cotton swab is inserted into the nose through the nasal speculum, it becomes contaminated before it reaches the area to be investigated. The examination of the middle meatus of normal noses in midsummer by such a procedure has shown 80 per cent of them to be sterile. This finding can be secured only if a double glass sleeve or some protecting mechanism is used with the cotton carrier on its way in and out of the nose.

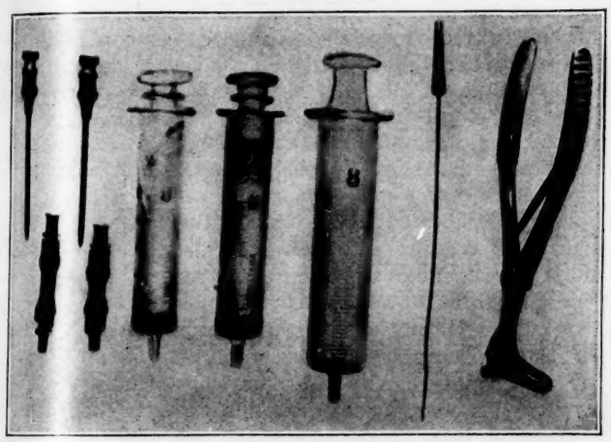

Fig. 3.—The trocar and syringe used in obtaining fluid for examination.

In making cytologic and bacteriologic studies of the nasal sinuses, it is necessary to aspirate the contents of the sinus or, if a fluid is not secured on aspiration, to introduce into the sinus a little sterile physiologic solution of sodium chloride, swish it around in the sinus and then aspirate it. The fluid thus secured is used for study. A good method of doing this in infants and older children is to insert a trocar through the inferior meatus into the maxillary sinus under gas anesthesia (fig. 2*A*). When this is done the operator should have before him in an illuminated box the x-ray picture of the sinus in order to know the exact relationship of the floor of the maxillary sinus to the inferior turbinate. After the trocar has entered the antrum, the stylet is withdrawn. Using a rubber connection, a Luer syringe containing about 4 drachms (15 cc.) of physiologic solution of sodium chloride is attached to the trocar (fig. 2*B*). A part of the physiologic solution of sodium chloride is injected into the antrum and then aspirated into the barrel of the syringe. Frequently pus so thick that it will hardly pass through the cannula is aspirated. (Figure 3 shows the trocar and syringe used in this procedure.) The material thus secured from the maxillary sinus is not contaminated by the contents of the nose and serves the excellent purpose of furnishing material for bacteriologic and cytologic study.

Search must be made in all cases of infection of the ears, nose and throat for both aerobic and anaerobic organisms. The search for anaerobic organisms occasionally gives unlooked for results.

When acid-fast organisms resembling Bacillus tuberculosis are found in the material from the ear, it is necessary to make injections into guinea-pigs in order to determine definitely whether or not it is Bacillus tuberculosis. Even if this organism is found in the discharge from the ear, if the patient has active pulmonary tuberculosis it may not be a case of tuberculous otitis, but the organism may be there as a contaminant.

Blood cultures and cultures from the spinal fluid are often indicated. In cases of suspected otitic or laryngologic sepsis, the agglutination tests for typhoid, paratyphoid, melitensis, typhus, meningococcus and tularemia will occasionally show that the infected ear is not responsible for the serious illness of the patient.

In the same way a careful search for malaria in the blood in a case of suspected thrombophlebitis in a lateral sinus will rarely give positive results.

The Kahn precipitation test and the Wassermann complement fixation test should be used as routine measures.

ABSTRACT OF DISCUSSION

DR. HARRIS P. MOSHER, Boston: I have found the Schilling index valuable in interpreting the course of infections and in evaluating them. It often hastens operative intervention, and it frequently helps in making a prognosis. Since the advent of agranulocytic angina, the differential blood count has come to the front. It alone makes the diagnosis. But long before this disease was described there were the leukemias and various blood dyscrasias which show their first signs in the throat. I have a feeling that any throat condition which is not definitely suppurative, and in which biopsy is not promptly positive, calls for a differential blood count. From the patient's standpoint, I think the physician who is not in intimate touch with a laboratory should take a routine culture in his throat cases and perhaps in every case make a differential blood count. Dr. Dean said nothing about epidemic sore throat. The laboratory a few years ago isolated the organism of this disease and has lately made a serum available. This is the only hope that has appeared in this dread disease. Dr. Dean's statement that one should not depend on swabs for detecting bacteria but should hunt in tissue specimens interested me especially. He said that if one does not find the bacteria it is because one does not hunt long enough. This points a way out. It may mean a solution in cases of infantile diarrhea associated with so-called mastoiditis.

DR. BURT R. SHURLY, Detroit: Dr. Dean's method of obtaining specimens for cytologic and bacteriologic studies without contamination is deserving of practical application in the office and in the hospital. The early knowledge of the culture findings, the chemical changes in the blood, the roentgen study and the study of the nasal discharge greatly influence the early choice of proper therapeutic measures. But with these laboratory aids easy of access it is necessary to remember that they, including the roentgen examination, are not without a considerable percentage of error, and that the basis of careful diagnosis must be common sense, good judgment, and a study of the individual. The history and clinical observations must remain paramount. The influencing factors of general systemic disease, the study of resistance to infection and the virulence of the micro-organisms must not be overlooked in evaluating the mystic maze of laboratory aids and technic. In the scientific fervor for chemical, cytologic and bacteriologic evidence one must not forget that the patient is not a guinea-pig but a member of the human family with an individuality.

DR. I. S. KAHN, San Antonio, Texas: For about a year I have studied the nasal smears in every person with vasomotor rhinitis coming to my office for diagnosis or treatment, and also in borderline chronic cases referred to me by rhinol-

ogists for decision as to the existence of nasal allergy. Naturally, easily diagnosed cases of irritating lesions such as fissures, ulceration, foreign bodies, parasites or impingement, that might produce eosinophilia were not referred, and I have no records on such lesions, and there are none in the literature. In every case showing nasal smear eosinophilia that I have seen, a definite allergic hypersensitivity was ultimately determined to be the sole, or a complicating factor. This was found unexpectedly in several cases of so-called chronic sinusitis referred by rhinologic friends to be used as controls for this work. In my experience to date, within the limitations of the irritating conditions mentioned, every case of nasal eosinophilia above 3 per cent has meant allergy and has been proved either by significant positive skin tests or environmental study, when positive skin tests were not secured, a condition now recognized as not rare by practically all allergy workers. The cytology of infections in the known allergic cases included in this study has shown also that the changes in the allergic state may be considerably modified by infection, and when such infection has occurred in an allergic individual, as shown by a complicating polynuclear cytosis, or by a polynuclear cytosis replacing previous eosinophilia, attention to proper treatment has greatly improved the results of therapy based on allergy alone, a matter of decided importance. In my experience, the hay fever cases temporarily failing to show eosinophilia are at times the cases complicated by infection, cases of extreme severity in which the allergic diagnosis is unquestionable, but in which the discharge is purely watery and there are no cells, and cases seen in a state of temporary quiescence. A case of feather, house dust or pollen sensitivity, with definite nocturnal or early morning symptoms of considerable severity, may be totally quiescent allergically and symptom free by afternoon after several hours of freedom from antigen contact, and the true state of affairs missed by both the examiner and the laboratory. In those cases limited principally to nocturnal or early morning activity, the material can be collected on a roughened cellophane handkerchief in the home as, sealed in a jar, it will remain fit for examination for several hours. For the allergy worker these routine smear tests are of decided value in proving the existence of the condition of hypersensitivity when the initial routine diagnostic skin tests are negative, leading to further investigation either by further skin testing or environmental study, or, a matter of as great importance, to the detection of unsuspected complicating infections requiring additional appropriate treatment.

DR. GEORGE PINESS, Los Angeles: The discussion of Dr. Dean's paper leads one to believe that this work is new, but a similar study has been carried on in my laboratory for some fifteen years, and in discussion with Dr. Dean and others, eosinophils were suggested as being characteristic but not always pathognomonic of allergic disease. The eosinophil picture was suggested as an aid in the differential diagnosis of allergic and other otologic diseases. The laboratory observations should not be used alone for diagnostic purposes but merely to substantiate diagnosis made from the clinical history and physical signs. In a series of 159 children studied at the allergic clinic of the Children's Hospital of Los Angeles, routine nasal smears were made. Of this group, fourteen were diagnosed as nonallergic prior to the examination by the otologist. Nasal smears and washings in this group revealed eleven negative as to eosinophils and three positive, bringing out the fact that allergic disease is readily recognized and in the questionable cases eosinophil studies on nasal smears and washings are of great value.

DR. L. W. DEAN, St. Louis: In making cytologic examinations of nasal and ear discharges, sometimes the observations are not what are expected. For one year I have looked for an increase of eosinophils in ear discharges. In those cases that are definitely allergic, in which there is an abundance of eosinophils in the nasal discharge, the ear discharges have been disappointing so far as the eosinophils are concerned. Many cells have been found which stain with eosin, but they are not granular. They are not eosinophils. In connection with the use of tissue secured at operation in determining the micro-organisms present, as mentioned by Dr. Mosher, the material secured at the time of operation is macerated and used for making cultures. The viable organisms should be in the tissue even if absent from the pus. I appreciate Dr. Shurly's point that clinical judgment is what counts. That goes without saying. It will always be the most important thing. Regarding eosinophilia in the nasal discharge being pathognomonic for allergy, as suggested by Dr. Kahn, I will say that this is not in accordance with what I have found. It is not safe to make a diagnosis of allergy on the basis of an increase in eosinophils in the nasal discharge, nor does the absence of eosinophils exclude allergy. In a case of digitalis poisoning, an enormous number of eosinophils were found in the nasal discharge. When the digitalis was discontinued, the eosinophils disappeared. When it was again administered, they reappeared. In a case of carcinoma of the maxillary sinus no eosinophils were found the day following operation; the second day only a few were found but on the third day there were great clouds of them in the nasal discharge.

CONVULSIONS IN CHILDHOOD

STUDY OF FOUR HUNDRED AND NINETEEN CASES

M. G. PETERMAN, M.D.
MILWAUKEE

This study concerns the selected case records of 419 children under 15 years of age who were admitted to the Milwaukee Children's Hospital because of convulsions. The selection of private and charity cases is limited to include only those in whom every reasonable effort was made to establish a diagnosis (table 1). This series represents 1.9 per cent of the total admissions (22,036) to this hospital in the last nine years. The small number of cases (28) listed in the tables under "Cause unknown" represent patients in whom it was impossible to establish a diagnosis after utilizing all of the facilities available in our institution. While they are an admission of the limitations of our ability, they are included without hesitation as a realization of some of the unsolved problems in pediatric neurology.

A great deal of clinical study and careful animal experimentation have provided a certain understanding of the mechanism of the convulsive state. While the precipitating factors and the entire mechanism of a convulsion are not clear, there are certain features which are rather generally accepted. Most convulsions are probably immediately due to a cerebral vasomotor reaction which produces first cerebral anemia (tonic stage) followed immediately by a cerebral congestion and edema (clonic stage) (Foster Kennedy[1]). Compression of the carotids and vagi in human subjects has produced clonic spasms and loss of consciousness (Leonard Hill[2]). In experiments on cats, cutting off

TABLE 1.—*Entire Series*

Diagnosis	Number	Per Cent
Epilepsy (idiopathic)	144	34.4
Acute infections	90	21.4
Spasmophilia or tetany	67	16.0
Cerebral birth injury or residue	55	13.1
Cause unknown	28	6.7
Miscellaneous	35	8.4
Total	419	100.0

From the Department of Pediatrics, Marquette University Medical School, and the Milwaukee Children's Hospital.

Read before the Section on Pediatrics at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 12, 1932.

1. Kennedy, Foster: Epilepsy and the Convulsive State, Baltimore, Williams & Wilkins Company, 1931.

2. Hill, Leonard: The Physiology and Pathology of the Cerebral Circulation, London, J. & A. Churchill, 1896.

the cerebral and medullary circulations was followed by unconsciousness, bladder and rectal evacuation, severe tonic convulsions and then flaccidity. A return of the circulation was followed by clonic convulsions (Pike and others [3]). "Convulsive attacks which follow temporary cerebral anemia can be regularly prevented by an artificially produced cerebral circulation of saline solution during the compression of the innominate and left subclavian arteries" (cats) (Elsberg and Stookey [4]).

The significance of cerebral edema in epilepsy has been known since the time of Hippocrates and has been more recently substantiated by the works of Alexander, Elsberg and Pike, Dandy, Mixter, Wartenberg, Carpenter, Fay and others.[5] The knowledge of this edema has been utilized in the treatment of epilepsy by dehydration (Dandy, Fay, McQuarrie and Peterman [6]). Possibly the effectiveness of the ketogenic diet is due to the dehydration it produces (Peterman [7]). It has long been known that the ketosis (Wilder [8]) is not the effective factor.[9] However, the peculiar susceptibility of the idiopathic epileptic patient to the periodic recurrence of his seizures, which are often of stereotyped character, has not been satisfactorily explained.

The high incidence of convulsions in childhood, particularly between the ages of 6 and 36 months, has been the subject of a great deal of speculation. There would be no particular advantage in reviewing the various theories that have been proposed to explain this frequency. Among them are the "incomplete development of the cortex," "incomplete myelinization of the nerves," "suppression of the cortical motor system" and many others.[10] With the present knowledge of the incidence and possibilities particularly of cerebral birth injury and hemorrhage, spasmophilia, epilepsy and acute infections, these theories are superfluous for all practical purposes. The infant and the child are subject to certain diseases, which in themselves are the exciting factors or indirect causes of convulsions. When the period of incidence of these diseases is passed, and thus the exciting causes are removed, the incidence of convulsions is greatly lowered. In most cases a thorough study will reveal the cause of the convulsion. Such a study also eliminates cutting of teeth, enlarged thymus, adhesions of the foreskin or clitoris and worms from the list of causes. There are no such diagnoses in this series.

TABLE 2.—*New-Born (to 1 Month)*

Diagnosis	Number
Cerebral birth injury	3
Acute infection	4
Total	7

It is our practice to obtain as complete a history as possible. Since in many cases of convulsions the physical findings after the attack may be entirely negative or normal, a great deal of emphasis must be laid on the history. The family history, if complete and reliable, will indicate whether or not a hereditary defect may be anticipated. The character of the pregnancy, the time of gestation and the type of labor will indicate whether the child has possibly had an intracranial injury. A description of the subsequent mental and physical development is of great value in determining the relationship of abnormal findings to the convulsions or vice versa. While the type and character of the convulsions may sometimes be observed, one is entirely dependent on the history for the frequency. About 75 per cent of our patients had convulsions in the hospital; thus in 25 per cent we were dependent on the history alone. The patients with idiopathic epilepsy have notoriously few seizures during a short period in the hospital (Peterman [11]).

TABLE 3.—*From 1 to 6 Months*

Diagnosis	Number	Per Cent
Acute infections	18	33.3
Cerebral birth injury	10	18.5
Spasmophilia	9	16.6
Gastro-enteritis	3	5.6
Hydrocephalus	2	3.7
Meningitis (meningococcus)	1	1.9
Unknown	11	20.4
Total	54	100.0

PRESENT SERIES

As stated, the convulsions of childhood are directly due to or associated with certain diseases, and these diseases are particularly prevalent at certain ages.

TABLE 4.—*From 6 to 36 Months*

Diagnosis	Number	Per Cent
Acute infection	52	35.3
Spasmophilia	51	34.7
Cerebral birth injury residue	17	11.5
Epilepsy (idiopathic)	10	6.7
Brain injury (traumatic)	2	1.4
Meningitis (meningococcus)	2	1.4
Hydrocephalus	2	1.4
Pertussis, sequel (intracranial hemorrhage)	1	0.7
Gastro-enteritis	1	0.7
Acute encephalitis (measles)	1	0.7
Encephalitis residue	1	0.7
Intracranial vascular lesion	1	0.7
Unknown	6	4.1
Total	147	100.0

Therefore, the convulsions are best classified according to age. Such a classification has been developed in this study and has proved to be of great clinical value (tables 2, 3, 4, 5 and 6). The small number of infants in the first month of life is characteristic of most children's hospitals.

The largest number of cases, 34.4 per cent, were diagnosed as idiopathic epilepsy. It is rather well

3. Pike, F. H.; Guthrie, C. C., and Stewart, G. N.: J. Exper. Med. **10:** 490, 1908.
4. Elsberg, C. A., and Stookey, B. P.: Studies on Epilepsy: I. Convulsions Experimentally Produced in Animals Compared with Convulsive States in Man, Arch. Neurol. & Psychiat. **9:** 613 (May) 1923.
5. Hippocrates: The Sacred Disease, translated by F. Adams, New York, William Wood & Company, 1886. Elsberg, C. A., and Pike, F. H.: Am. J. Physiol. **76:** 593 (May) 1926. Alexander, W.: Lancet **2:** 932, 1911. Dandy, W. E.: Bull. Johns Hopkins Hosp. **34:** 245 (Aug.) 1923. Mixter, W. J.: Three Cases of Focal Epilepsy, Arch. Neurol. & Psychiat. **9:** 402 (March) 1923. Wartenberg, R.: Ztschr. f. d. ges. Neurol. u. Psychiat. **94:** 585, 1924-1925. Carpenter, E. R.: Am. J. M. Sc. **173:** 333 (March) 1927. Fay, T.: Am. J. Psychiat. **8:** 783 (March) 1929.
6. Dandy, W. E.: Am. J. Psychiat. **6:** 519 (Jan.) 1927. Fay, T.: Epilepsy and the Convulsive State, Baltimore, Williams & Wilkins Company, 1931. McQuarrie, I.: Epilepsy in Children, Am. J. Dis. Child. **38:** 451 (Sept.) 1929. Peterman, M. G.: Am. J. Psychiat., to be published.
7. Peterman, M. G.: Tr. Second Internat. Cong. Pediat. Stockholm, 1930, vol. 11.
8. Wilder, R. M.: Mayo Clin. Bull. **2:** 307, 1921.
9. Peterman, M. G.: The Ketogenic Diet in Epilepsy, J. A. M. A. **84:** 1979 (June 27) 1925.
10. Sachs, B., and Hausman, L.: Nervous and Mental Disorders from Birth Through Adolescence, New York, Paul B. Hoeber, Inc., 1926, p. 584.
11. Peterman, M. G.: The Ketogenic Diet, J. A. M. A. **90:** 1427 (May 5) 1928.

known that most convulsions in children, particularly after 3 years, are due to epilepsy. However, this is no justification for the common error of making this diagnosis without further investigation. The diagnosis of idiopathic epilepsy is made by exclusion and only when all organic possibilities have been eliminated. In this paper the petit mal seizures are included as convulsions.

Twenty-one and four-tenths per cent of the convulsions were caused by acute infections. Under this heading are included the acute infections of the upper respiratory tract, otitis media, the onset of pneumonia and the onset of some infectious diseases.[12] The convulsion is probably the response of the organism to the invasion of the blood stream or meninges by the microorganisms (septicemia), or to the dysregulation of the water balance which many infections produce (cerebral edema).

TABLE 5.—*From 3 to 10 Years*

Diagnosis	Number	Per Cent
Epilepsy (idiopathic)	81	57.0
Cerebral birth injury residues	18	12.7
Acute infections	15	10.6
Tetanus	4	2.8
Residue brain injury (accidental)	2	1.4
Encephalitis, residue	2	1.4
Gastro-enteritis	2	1.4
Jacksonian epilepsy (no evidence injury, infection or tumor)	2	1.4
Poliencephalitis (Strümpell-Marie)	2	1.4
Spasmophilia	1	0.7
Meningitis	1	0.7
Brain tumor	1	0.7
Meningovascular, syphilis congenita	1	0.7
Hydrocephalus, congenital	1	0.7
Congenital cerebral defect	1	0.7
Unknown	8	5.7
Total	142	100.0

Spasmophilia caused the seizures in 16 per cent of the patients, and 76 per cent of these children were between 6 and 36 months of age. There were 9 infants between 2 and 6 months of age in whom the diagnosis of infantile tetany or spasmophilia was made. In 5 the blood serum calcium on admission was 7.9, 6.3, 7.5, 7.5 and 7 mg., respectively. In the remaining 4 the diagnosis was made on the basis of convulsions with carpopedal spasm, positive Chvostek and Trousseau signs and positive Erb electrical reactions. A discussion of tetany in young infants is not in order in this paper.

Thirteen and one-tenth per cent of the patients had convulsions on the basis of cerebral birth hemorrhage or injury or a residue of these lesions. A number of investigators have demonstrated that trauma can render an area of the brain unstable. Of 25,000 soldiers who suffered injury to the brain during the World War, in 4 per cent convulsions subsequently developed.[13] The studies of Sharpe and Maclaire, M. Hines Roberts, L. Howard Smith and others on the spinal fluid of new-born infants have demonstrated a probable injury in between 10 and 15 per cent of all infants.[14] The effect of this birth traumatization has been well presented in the classic works of Ehrenfest, Ford and others.[15] Whether the birth traumas produce immediate symptoms or not, they are capable of lowering the threshold of irritability (Timme)[16] or, by subsequent contraction of scar tissue (Foerster and Penfield),[17] of producing convulsions.

In 6.7 per cent of the patients the diagnosis could not be established.

The remaining 8.8 per cent constitute a miscellaneous group in which tetanus occurs the most frequently.[7]

CLASSIFICATION ACCORDING TO AGE

New-Born Infants (to 1 Month) (7 Cases).—While this series is small, the findings coincide essentially with those of larger groups in that cerebral birth trauma is a most common cause of convulsions.[18] The explanation was given previously. With a history of prematurity, prolonged or difficult labor or cyanosis at birth, a subsequent convulsion should immediately suggest the possibility of a birth injury. A spinal puncture is of the greatest value in diagnosis. If the delivery has been uneventful and a fever or other signs of infection precede the convulsion, another cause may be considered. A leukocyte count and possibly a blood culture will be of assistance in making the diagnosis.

Infants from 1 to 6 Months (54 Cases).—Contrary to many authors, convulsions are not infrequent in this period (12.9 per cent of this series). Here acute infections play the predominating rôle in the etiology (33.3 per cent of the cases). The cerebral birth injury residues are next in frequency (18.5 per cent). This age period contains the largest number of patients (11 per cent) with convulsions of unestablished origin.

Infants Between 6 and 36 Months.—This period has the highest incidence of convulsions (147 cases, or 35 per cent of the series. The acute infections, particularly the onset of the acute infectious diseases, are the most frequent cause of convulsions at this age (52 cases, or 35.3 per cent). These cases are recognized by the onset of convulsions with fever and leukocytosis. In this period spasmophilia or tetany constitutes an almost equal number (51 cases, or 34.7 per cent). These cases appear most commonly in the spring and fall as interrupted healing of rachitis (Gerstenberger and his associates[19]). They are usually diagnosed on the basis of characteristic convulsions preceded by irritability, facial twitching or laryngo-

TABLE 6.—*From 10 to 15 Years*

Diagnosis	Number	Per Cent
Epilepsy (idiopathic)	50	72.5
Cerebral birth injury residues	6	8.8
Congenital brain defect	2	2.9
Tetanus	2	2.9
Acute infection	2	2.9
Jacksonian epilepsy (no evidence injury, infection or tumor)	1	1.4
Residue brain injury (traumatic)	1	1.4
Congenital syphilis	1	1.4
Chronic encephalitis	1	1.4
Unknown	3	4.4
Total	69	100.0

12. Sachs and Hausman (footnote 10, p. 582). Griffith, J. P. C., and Mitchell, A. Graeme: The Diseases of Infants and Children, Philadelphia, W. B. Saunders Company, 1927, vol. 2, p. 510.
13. Wortis, quoted by Kennedy (footnote 1).
14. Sharpe, W., and Maclaire, A. S.: Intracranial Hemorrhage in the New-Born, J. A. M. A. **86**: 332 (Jan. 30) 1926. Roberts, M. Hines: The Spinal Fluid in the New-Born, J. A. M. A. **85**: 500 (Aug. 15), 1925. Smith, L. H.: Am. J. Obst. & Gynec. **19**: 374 (March) 1930.
15. Ehrenfest, Hugo: Birth Injuries, New York, D. Appleton and Company, 1931. Ford, F. R.; Crothers, Bronson, and Putnam, H. C.: Birth Injuries of the Cerebral Nervous System, Baltimore, Williams & Wilkins Company, 1927.
16. Timme, W.: Epilepsy and the Convulsive State, Baltimore, Williams & Wilkins Company, 1931.
17. Foerster, O., and Penfield, W.: Brain **53**: 99 (July) 1930.
18. Sachs and Hausman (footnote 10, p. 582).
19. Gerstenberger, H. J.; Hartman, J. I.; Russell, G. R., and Wilder, T. S.: The Etiology of Infantile Spasmophilia, J. A. M. A. **94**: 523 (Feb. 22) 1930.

spasm in infants with evidence of rachitis. The convulsions, which are characterized by carpopedal spasms, are usually precipitated by or associated with an acute infection of the upper respiratory tract. The diagnosis may be confirmed by the clinical findings of a Chvostek and a Birk (peroneal) nerve sign, the Trousseau phenomena and the Erb electrical reaction, by roentgenologic signs of a beginning healing of rachitis and by a usually low calcium and high phosphorus content of the serum. The cerebral birth injury residues constitute 11.5 per cent (17 cases) of this group and are usually characterized by a history of birth injury and a delayed development. Physical examination often reveals spasticity and increased and unequal reflexes. The convulsions may be precipitated by an acute infection. Ten cases, or 6.7 per cent, are due to idiopathic epilepsy. The high incidence of acute infections and spasmophilia in this period justifies the separation of this group from the following one.

After 3 years and through puberty, idiopathic epilepsy assumes the major rôle in the causation of convulsions, while cerebral birth injury residues take second place, and the acute infections rapidly decrease in number.

Between 3 and 10 Years.—This is the second largest group of cases (142 cases, or 34 per cent). Epilepsy is responsible for 81 cases, or 57 per cent. These patients present a family history of epilepsy or hereditary nervous disease in over 50 per cent of the cases, while the past history is usually irrelevant. The convulsions recur more or less periodically, with aurae in about 50 per cent. There is often a history of dietary indiscretion and constipation immediately preceding the attacks. The physical findings and laboratory examinations between attacks are usually negative (Peterman [20]).

The cerebral birth injury residues comprise 13.4 per cent of this group of cases (19 cases) and are characterized by the findings given previously.

The acute infections constitute 15 cases, or 10.6 per cent.

Between 10 and 15 Years.—This group of 69 children (6.4 per cent of the series) differs from the preceding one in the lower incidence of cerebral birth injury residues (6 cases, or 8.8 per cent) and acute infections (2 cases, or 2.9 per cent). Idiopathic epilepsy is responsible for 50 cases (72.5 per cent).

Most of the miscellaneous diagnoses (37 cases, or 8.8 per cent) are self-explanatory. The 6 cases of gastro-enteritis include a group of children with a history of dietary error followed by vomiting and diarrhea and convulsions in whom the physical findings were otherwise negative. The 3 cases of congenital cerebral defect were ones of porencephalia, which was confirmed by encephalograms. There were 2 cases of poliencephalitis which conform to Strümpell's and Marie's original descriptions of this condition.[21]

There is a strikingly low incidence of syphilis, hydrocephalus and injury (traumatic) to the skull in this series.

Routine examinations of the stools for intestinal parasites have given negative results in this series, and intestinal parasites are eliminated as a cause.

Examinations of the blood have revealed leukocytosis (over 10,000) at the time of entrance in 168 cases. Of these, 42 were cases of spasmophilia, 41 of idiopathic epilepsy, 36 of "acute infections," 18 of cerebral birth injury residue and the remainder of miscellaneous conditions. Forty-eight of these 168 patients with leukocytosis had a polymorphonuclear count over 70 per cent. The counts were found in 18 cases of epilepsy, 10 of "acute infections," 5 of "unknown cause," 4 of meningitis and the remainder in miscellaneous conditions.

The spinal fluids were abnormal or pathologic in 22 cases. (The cell count was over 10 in 7 cases of "acute infections," in 5 of meningitis, in 4 of epilepsy, in 3 of cerebral birth injury residues and in 2 of tetanus, and there was a positive Wassermann reaction in 1 case of congenital syphilis.)

There were 4 deaths in convulsions, 3 in tetanus and 1 in acute infection (bronchopneumonia).

IMMEDIATE TREATMENT

The simplest, quickest and most effective treatment of a seizure is the administration of chloroform by inhalation.

The most logical treatment, which is equally simple and effective but acts more slowly, is the administration of hypertonic solutions of magnesium sulphate (50 per cent), dextrose (or cane sugar) (from 25 to 50 per cent) or sodium chloride (from 5 to 10 per cent) by mouth or rectum (from 2 to 8 ounces [59.2 to 236 cc.]). The solutions may be given from every four to six hours as indicated. Sterile solutions of magnesium sulphate (25 per cent) may be injected intramuscularly (from 5 to 10 cc.) or intravenously (from 2 to 5 cc. of from 10 to 20 per cent, slowly) for rapid effect.

The spinal fluid should be drained for examination and for the relief of pressure (except in cases of suspected tumor of the brain). In intracranial hemorrhage lumbar drainage removes the blood, irrigates the subarachnoid space and tends to prevent blood clots and the collection of fluid. It should be preceded by the intramuscular injection of blood. Spasmophilia or tetany may be treated immediately by the intravenous or intramuscular injection of calcium preparations (calcium gluconate) followed by viosterol in large doses.

Sodium barbital may be injected intramuscularly or subcutaneously in doses of from ¼ to 1½ grains (0.016 to 0.097 Gm.).

Between seizures phenobarbital may be given by mouth to prevent a second seizure (from ¼ to 1½ grains).

The treatment of recurring convulsions is a large subject in itself and depends on the basic cause.

COMMENT

Four hundred and nineteen cases of convulsions in children have been studied, and a diagnosis has been established in 93.3 per cent. The study includes a complete history, a careful physical examination, including neurologic studies, a blood count, a Wassermann test of the blood and microprecipitation tests, urinalysis, examination of the spinal fluid (except in spasmophilia), examination of the fundi, x-rays of the skull and examinations of the stools. In the past three years encephalograms have been made in doubtful cases.

The findings reveal that certain diseases peculiar to childhood are the direct causes of most of the convulsions. While some children may be said to be particularly susceptible to the convulsive state, this

20. Peterman, M. G.: Wisconsin M. J. **31**: 169 (March) 1932.
21. Strümpell: Jahrb. f. Kinderh. **22**: 173, 1885. Marie, P., and Foix, C.: Triplégie spasmodique sclérose intracérébrale, Rev. neurol. **25**: 346, 1913.

study indicates that there is usually a physical basis for this susceptibility (spasmophilia or epilepsy) which is amenable to treatment.

Every convulsion produces a certain amount of cerebral injury and therefore lowers the threshold for subsequent seizures. Every convulsion demands a careful study and effort to prevent a recurrence. It is extremely unfortunate that there are still physicians who consider convulsions a necessary evil of childhood and advise parents that the child will "outgrow" the tendency.

While many patients came in with diagnoses of thymic convulsions, worms, teething convulsions or toxic convulsions, a thorough examination eliminated these diagnoses. These conditions must truly be exceedingly rare. The teething convulsions were usually spasmophilias.

During the past year I have made moving pictures of the various types of convulsions in order to study the convulsive stage in detail. No conclusions have been drawn, but it appears that the idiopathic epilepsies represent stereotyped reactions which are also observed in some brain injury residues (birth and traumatic), while most of the remaining seizures represent incoordinated "explosions."

CONCLUSIONS

A practical classification of convulsions in childhood is presented. Most of the convulsions in new-born infants are due to acute infections or to cerebral birth injury; in later infancy, they are due to spasmophilia, and in childhood, to idiopathic epilepsy. A basic cause may be found in most cases. Convulsions are just as serious a symptom in children as they are in adults. There is no justification whatever in minimizing the symptom because of the age or in informing parents that time will remove the cause.

ABSTRACT OF DISCUSSION

DR. HARRY LOWENBURG, Philadelphia: Some years ago, before this section, I believe, Drs. Powers and Park, at that time at Yale, did some studies in the treatment of convulsions in whooping cough. They came to the conclusion that many of these children who develop convulsions during whooping cough, and also many children who initiate their acute infectious diseases with convulsions, were essentially spasmophilic. They made calcium studies and were able to demonstrate this in a large number of cases. The conclusion which they drew was that it would be possible, as a prophylaxis in the treatment of whooping cough and of other conditions wherein convulsions might be expected, to regard these children as spasmophilic and treat them accordingly with injections of calcium and with the hormone of the parathyroid. I followed this teaching for many years and, I think, to great advantage. Dr. Peterman did not mention in his paper the use of calcium, and of parathyroid extract. Perhaps it was broadly covered under the direction to treat the basic disease. If cerebral edema is a cause for convulsions in these children, it seems quite in order to make use of calcium and of the parathyroid hormone.

DR. M. G. PETERMAN, Milwaukee: I have had only two children with pertussis develop convulsions. Neither of them had a low blood calcium. One had a blood-tinged spinal fluid; the other had fluid under increased pressure. But neither presented what was considered as spasmophilia. Therefore, I have not included that point in the discussion. The series shows that the convulsions in infants are due to cerebral birth injuries or acute infections; in later infancy, to spasmophilia; in childhood, to idiopathic epilepsy. I believe that convulsions are just as serious a symptom in children as they are in adults and that there is no justification whatever in minimizing the symptoms because of the age, or in informing parents that time will remove the cause.

THE MORTALITY FROM ABSCESS OF THE BRAIN

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Of all the lesions involving the brain, none requires more judgment and experience in its successful management than an abscess. That an abscess exists may be difficult of proof. Frequently when its presence seems unquestioned, a precise localization cannot be made. Lastly, when the diagnosis of an abscess in a definite area is reached, the decision as to the proper time and method for its evacuation taxes all the surgeon's skill. All too often diagnosis and localization are proved correct, but the patient dies as the result of imperfectly applied surgical measures.

This report is based on a series of fifty-one verified abscesses of the brain, thirty-nine from the neurosurgical service of the University Hospital, eight from the Graduate Hospital and four from Mount Sinai Hospital. The etiology and pathology of brain abscess have been extensively reviewed by many writers. Further repetition of these points seems unnecessary. I wished to determine from an analysis of these fifty-one cases whether the high mortality accompanying abscess of the brain is due to errors in diagnosis and localization, or whether the time in the development of the abscess at which drainage is instituted and the means employed in drainage are the cause.

TABLE 1.—*Fifty-One Cases of Brain Abscess*

Preoperative localization and diagnosis correct.....	39 or 76.4 per cent
Cases diagnosed as tumor but localization correct...	4
Total localization correct.....	43 or 84.3 per cent
Errors in localization and diagnosis cannot account for mortality	

Among the fifty-one verified cases, a preoperative diagnosis of abscess was made in thirty-nine. In four the lesion was considered to be a tumor rather than an abscess. All these forty-three patients were operated on and the abscesses drained. One child was admitted unconscious with signs of increased intracranial pressure. The history obtained was inadequate. As the situation was desperate and no positive diagnosis could be reached, ventricular tap was immediately performed for relief of pressure in the hope that the child could be kept alive until a more thorough examination was made. However, she died six hours later. Autopsy showed a cerebellar abscess. In four cases, abscess was suspected, and drainage attempted unsuccessfully. But since in each instance the localization was incorrect, the abscess was subsequently found at autopsy. In two cases a diagnosis of meningitis was made on admission and no operation seemed indicated. Autopsies showed a subcortical abscess of the frontal lobe, ruptured into the anterior horn of the ventricle, and a subdural frontal abscess with generalized meningitis. Another patient was awaiting operation for cerebellar abscess, but died suddenly from a cerebellar crisis. Autopsy verified the localization of the abscess.

These figures seem to show clearly that diagnosis and correct localization of the brain abscess were possible in roughly 80 per cent of this series. Errors in deter-

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mining the presence and situation of a brain abscess do not, therefore, seem to play an important part in accounting for the high mortality rate.

Presuming that the diagnosis of brain abscess is made and a decision reached as to its position, at what period in its development should drainage be attempted? Should evacuation of the abscess be carried out promptly, or should intervention be delayed until the defensive mechanism of the brain has had ample time to wall off and encapsulate the infection? If accepted methods of treating infection elsewhere can be applied to intracranial suppuration, then surgical intervention should be postponed until localization has occurred. No experienced surgeon would consider incising and draining an abscess in any other area of the body before encapsulation was completed. Furthermore, the brain is less well organized than other regions to combat suppuration. The glial elements of the brain are highly specialized cells, well equipped to carry out their proper function, but they react slowly in localizing infection. Moreover, the brain is relatively poorly supplied with fibrous tissue, which is the foundation of any "walling off" process. Therefore, since delay in establishing drainage until localization of the infectious process has occurred is a major surgical principle, it should be strictly adhered to in dealing with brain abscess. But a longer period must be allowed the brain to complete the encapsulation, lest drainage be inserted before the defensive mechanism has functioned properly.

The development of an abscess of the brain parallels closely that of an abscess elsewhere in the body. Infection is implanted, adjacent cells die, and leukocytes surround and invade the infected area. "Cerebritis," local tissue necrosis without definite pus formation, occurs. Liquefaction of the center of the infected area follows. Finally, encapsulation may take place, unless the virulence of the organism is such that the defensive mechanism of the brain is overwhelmed. Obviously drainage during the stage of "cerebritis" is useless, for the infected area contains little or no free pus that can be evacuated. Even after the fluid pus has formed, drainage is of questionable propriety unless encapsulation has occurred. Encapsulation is evidence that the defensive reaction of the brain tissue has been able to control and localize the infection. Whenever possible drainage should be delayed until the abscess is circumscribed. The defensive mechanisms of the brain are thereby given sufficient time to complete encapsulation without the added handicap of operative trauma. Furthermore, isolation of the infecting organisms tends to decrease their virulence. Lastly, the adjacent tissues become sensitized to the infecting organism so that when drainage is instituted spread of infection about the drainage tract is less likely to result.

The results in this series of cases indicate the dangers of operation on an abscess of the brain before encapsulation has occurred. Nineteen such cases were verified by operation or at autopsy. In fourteen cases the abscesses were drained; four in the "cerebritis" stage, so that little or no pus was obtained. Three patients were not operated on because a diffuse meningitis was present when they were first observed. In two cases evacuation was attempted, but the localization was faulty, and the position of the lesion was discovered only at autopsy. Lack of encapsulation of the infection was demonstrated at necropsy in twelve cases. The operative notes in seven other cases state that no resistance suggesting capsule formation was met by the exploring cannula just prior to the appearance of pus in its lumen. None of these nineteen patients survived, although drainage by precisely similar methods was followed by recovery in instances in which definite encapsulation was encountered. While it is admitted that a sense of resistance to the tip of the exploring cannula may not be an accurate means of determining capsule formation, nevertheless, it seems sufficiently accurate to sustain our position. In three cases in which the operative notes stated that a capsule was present because of resistance to the cannula, microscopic examination later showed that no true encapsulation had occurred. However, the converse is not true. In no instance in which the operator held the opinion that the infection was not walled off was a capsule demonstrable at autopsy.

Based on this record, it is the opinion of my associates and myself that surgical intervention for evacuation of a brain abscess should be deferred until encapsulation seems assured. We do not believe that an unlocalized area of "cerebritis" should be classed as an abscess of the brain any more than a spreading infection elsewhere in the body can rightfully be designated as an abscess. Furthermore, we are doubtful as to the propriety of surgical intervention in these early cases. If any surgical measure is undertaken the method used should be most conservative. When the exploring cannula fails to evacuate pus or if pus is found without a change in resistance suggesting the presence of a capsule, the operator should think carefully before he inserts permanent drainage. The trauma resulting from introducing a drain at this time may seriously handicap the defensive reaction of the brain. A simple tap and evacuation of pus will relieve existing pressure symptoms. A second evacuation with drainage can be done at a later date when encapsulation of the abscess has been more completely established.

TABLE 2.—*Time of Encapsulation*

Operated on within 2 weeks	13
10 unencapsulated	
3 encapsulated	
Operated on third to fourth week	18
8 unencapsulated	
10 encapsulated	
Operated on fifth to sixth week	5
2 unencapsulated	
3 encapsulated	
All operated on after sixth week found encapsulated	

Granting that sufficient time should be permitted a brain abscess to encapsulate, are there definite signs which indicate with certainty that this has occurred? How long should drainage be delayed to permit complete encapsulation? Thirteen abscesses were verified in the first two weeks. Ten were unencapsulated; seven were proved at autopsy and three by operation. The four cases in which drainage was instituted during the period of "cerebritis" fall in this group. Twelve abscesses were subcortical. One of the three encapsulated abscesses was extradural following frontal osteomyelitis. In eighteen cases drainage was performed during the third and fourth weeks. Eight abscesses were recorded as unencapsulated, of which four were verified at autopsy. Five patients were operated on in the fifth or sixth week. Three of the abscesses were reported as encapsulated and two as unencapsulated, all on operative evidence alone. Each of the fifteen abscesses in the patients in this series operated on after the sixth week following the onset of

symptoms appeared to have a definite capsule. It would seem, then, based on the criteria for encapsulation herein adopted, that thorough walling off of a subcortical area of infection within the brain requires about four weeks from the onset of symptoms, provided that the defensive mechanism of the brain is not overwhelmed from the start by the virulence of the infection.

Is there any other means by which encapsulation may be determined? Based on the records of these cases, the neurologic findings were not of much aid from this point of view. In only three of the nineteen cases of unencapsulated abscesses was there observed a definite increase in the neurologic signs suggesting a spreading lesion. In the other cases a group of symptoms appeared, at times slowly and in other instances abruptly, but all were apparent in some degree from the onset. These early manifestations often increased in severity, but except for evidence of increased intracranial pressure, such as headache, increasing stupor and slow pulse and respiration, it is curious how rarely a fresh neurologic symptom suggesting a spread of infection from one area into an adjacent part of the brain became conspicuous in the clinical picture. Lumbar puncture was performed so infrequently that no real information can be gleaned from this source. Fundiscopic examinations were made in forty-eight cases. Of eighteen unencapsulated abscesses, there was no choking in eleven; the disks were blurred in two, and actual choking varying up to 4 diopters in each eye occurred in five. Of the thirty-two encapsulated abscesses, there was no choking in six; blurring of the disks occurred in four, and in twenty choking of various degrees up to 7 diopters was noted. No record of the condition of the eyegrounds could be found in three instances. In two of the six encapsulated cases without choking, the abscess had probably been present for at least a year, so that possibly the swelling had been present and subsided. In these two instances the abscess followed a trauma and the inclusion of a foreign body within the brain. It seems, therefore, that the presence of choked disk suggests that encapsulation has probably occurred. We have not sufficient information as to the stage of the papilledema to bear out Lillie's [1] contention that surgical intervention is most successful when it is withheld until no further increase in the choking is to be noted.

TABLE 3.—*Operative Results*

19 cases unencapsulated abscess, mortality	100.0%
30 cases encapsulated abscess, 20 lived, 10 died, mortality	33.3%
Time of operation definitely affects results	

TABLE 4.—*Results of Fundiscopic Examination*

18 Unencapsulated Abscesses	
No choked disk	11
Blurred disk	2
Choked disk up to 5 diopters	5
30 Encapsulated Abscesses	
No choked disk	6
In 2 of these abscess present for at least a year and choking may have subsided	
Blurring of disk	4
Choked disk up to 7 diopters	20

The failure to save a single patient with an unencapsulated abscess of the brain by operative measures can lead to only one of two conclusions; either the surgical measures were ill timed or they were ineffectively applied. Drainage should certainly have been delayed in the four cases in which it was inserted during the stage of "cerebritis," for little or no pus could be evacuated. In two of these cases the "cerebritis" followed trauma. Three other patients were proved to have multiple abscesses, frontal and occipital, parietal and cerebellar and extradural and intradural frontal, obviously hopeless conditions. It should be stated, however, that in none of these instances was the presence of the second abscess suspected until revealed at autopsy. Since precisely similar methods of drainage were employed in all abscesses whether found to be walled off or not, a comparison of the results obtained by operation on the encapsulated group may serve to show whether faulty surgical technic was the cause for the overwhelming mortality when operation was carried through before localization was complete.

Thirty-two encapsulated abscesses round out this series. One patient died in the ward while awaiting operation. Another was refused operation owing to the abrupt development of frank meningitis. This case is classified as an error in diagnosis, since the presence of an abscess was entirely unsuspected. Autopsy revealed a well encapsulated subdural collection which had ruptured into the subarachnoid space.

TABLE 5.—*Time of Drainage of Encapsulated Abscesses; Series of Thirty-Two Cases; Thirty Operated On*

	Cases	Recovered	Died
Second to third week	3	1	2
Fourth week	11	8	3
Sixth week	4	4	0
Eighth week	4	1	3
Thirtieth to fiftieth week	5	3	2
One year	3	3	0

Earlier surgical intervention might well have resulted in recovery. Thirty patients with encapsulated abscesses were operated on and the abscesses drained with twenty recoveries and ten deaths. In three such cases the abscesses were drained in the second and third weeks following the onset of symptoms; one patient recovered and two died. One death occurred from sudden compression following apparently perfect drainage of a cerebellar abscess. Autopsy showed the tube within the abscess; the abscess was entirely collapsed, but the cerebellar lobe was swollen from traumatic edema. A pressure cone was demonstrable about the medulla, and the cerebellar tonsils were jammed in the foramen magnum. A subtemporal decompression or a ventricular tap might have saved this patient. He was found dead in bed the fourth night following operation. The pulse and respiratory rate gave no indication of increased pressure. As he had had essential epilepsy for ten years, it was suspected that a convulsion might have occurred, raised the intracranial pressure suddenly and caused fatal medullary compression. The second patient was suspected of having an abscess, but two exploratory taps were negative. The diagnosis of tumor was therefore made, and an osteoplastic flap reflected. A large abscess was discovered and an attempt made to marsupialize the abscess by sewing the dura to the capsule, thus walling off the subarachnoid space. The bone flap over the cavity was removed. The abscess slowly extruded, and for a time the situation appeared favorable. However, the "cerebritis" spread slowly, and meningitis resulting in death appeared seven weeks later.

1. Lillie, W. I.: Surg., Gynec. & Obst. **47**: 405 (Sept.) 1928.

Eleven encapsulated abscesses were drained in the fourth week of symptoms. Eight patients recovered and three died. One fatality resulted in a patient with multiple cerebellar abscesses only one of which was drained. The presence of two lesions was confirmed at autopsy. Both seemed of equal age and were not connected, so that it appears certain that the second abscess did not result from imperfect drainage or spread from the other. A second death followed the development of an internal hydrocephalus which resulted from imperfect drainage of a cerebellar collection. The third death in this group followed a simple tap and tap with insertion of drainage into a small deep-seated and toughly encapsulated abscess of the frontal lobe. The pus was located and evacuated at the first operation. Owing to the thickness of the capsule, it seemed doubtful whether drainage could be inserted. Two days later, the attempt was made, but the tube was implanted only with difficulty. Fatal meningitis developed a week later. Autopsy was refused. It is my impression that we should have been satisfied with a simple tap and not traumatized the tissues by the insertion of drainage.

Four patients with localized abscesses were operated on during the sixth week of their formation. All of the patients recovered. Curiously enough, in this group are included two cerebellar abscesses that were simply evacuated and not drained. In one instance it was believed that a tumor of the vermis was present. Both patients are alive and entirely well four and two years later.

Four patients make up the group operated on two months after the onset of symptoms. Three died and one recovered. One fatality followed operation on the mistaken diagnosis that a tumor was present. A large, right frontal abscess was discovered. The bone flap was removed and the arachnoid space excluded by suturing the dura to the abscess wall. The faulty diagnosis spoiled an excellent opportunity for recovery, as fatality from meningitis promptly resulted. A second patient had an ipsolateral cerebellar and parietal lobe abscess and a sinus thrombosis. Only the cerebellar abscess was diagnosed and drained. Death resulted from rupture of the cerebral collection into the ventricle. The third patient obviously had an abscess of the right temporal lobe following infection beneath the temporal muscle involving the zygoma. When first seen only a blurring of the disk was noted. Operation was delayed to allow for more complete encapsulation. Sudden stupor developed five days later. An abscess containing about 50 cc. of colon pus was hastily evacuated. The patient never recovered consciousness and died five hours later. Our judgment was unquestionably at fault in this instance.

Five abscesses were drained from six to twelve months after the first appearance of the symptoms. Two patients died. One death occurred in an old depressed fracture with an encapsulated sequestrum. A small cerebral fungus was present before operation. A collection immediately beneath the fungus and surrounding the sequestrum was evacuated. A sudden medullary collapse occurred four hours later. Further exploration revealed a larger abscess more deeply situated below the cortex. This was promptly drained, but nevertheless, the patient died. The second death followed drainage of a right temporosphenoidal abscess in one stage through an opening in the bone 4 cm. across. The abscess was easily tapped and drainage inserted without difficulty, but a cerebral fungus resulted, followed in several weeks by meningitis.

Three chronic abscesses, which from the history were apparently present for at least a year, were drained. All of the patients recovered uneventfully. These thirty cases represent the results of surgical drainage in true brain abscess. All of the lesions had progressed beyond the stage of "cerebritis"; localization had occurred, and the defensive mechanism of the brain had the situation well in hand when drainage was instituted. That precisely similar methods of treatment prior to encapsulation resulted in such a strikingly different mortality rate emphasizes the importance of selecting the proper time in the development of the abscess for the insertion of drainage.

METHOD OF DRAINAGE

In the drainage of these abscesses, three principles have rigidly been followed. First, with the exception

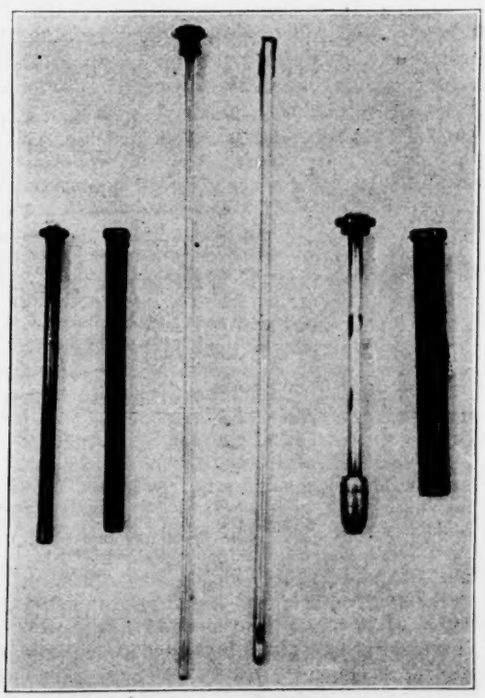

Fig. 1.—Brain abscess cannulas. Exploring cannula and stylet (center). Two sizes of carriers and silver tubes to pass over the cannula into the abscess (right and left).

of the four cases in which tumor was suspected and a large flap turned down, the lesion was approached through a small opening in the bone. In almost every instance a trephine was made, never more than 2 cm. in diameter. Every effort was used to place the opening in the bone in that area beneath which the abscess most closely approximated the surface of the brain. No particular effort was made to drain through the point at which the infection crossed the meninges into the brain. Second, in twenty-two of the thirty encapsulated abscesses, the evacuation was carried through in two stages, the trephine opening being made, the dura opened and packing introduced in the wound for from twenty-four to forty-eight hours to produce meningocortical adhesions and to wall off the subarachnoid space. Fifteen of these patients recovered and seven died. Third, the drainage material used in all instances was a soft rubber tube. Except in four cases in which the patients were operated on under the

impression that the lesion was a tumor, the abscess cavity was never widely opened for inspection. Two of these patients, as has been stated, were treated by marsupialization of the abscess cavity. The after-treatment was modeled closely on King's [2] method; both patients died. In the other two cases, in which an osteoplastic flap was reflected, the abscess was opened, the pus sucked out, the cavity washed out with a mild antiseptic and the wound closed without drainage. One patient has had no symptoms suggesting a recurrence in the past four years, the other in the past eight months. In four cases, the abscess was tapped, but following Dandy's [3] suggestion no drainage was introduced. Three patients recovered and one died. All three patients have been symptom-free for over two years. Gauze packs have never been used in any of these cases to keep the cavity open or to act as drains, nor has the Moser drain, so strongly recommended by Cahill,[4] been employed.

One of the difficulties frequently encountered in attacking an abscess is the introduction of the drain. Considerable trauma may result to surrounding tissue with consequent spread of infection in an attempt to place the tube accurately in the abscess cavity. In an effort to solve this problem, we have made an exploring cannula of the usual diameter, but of double length. Over this cannula fits a sleeve with its lower end conical and tapering off to the exact size of the cannula (fig. 1). This sleeve carries snugly fitting silver tubes of various diameters. Once the exploring cannula is in the abscess cavity, the sleeve and tube are passed down the shaft to the point where the fingers steadying the cannula in the abscess cavity rest against the edge of the trephine opening. The reason for the extra length of the exploring cannula now becomes apparent, for its upper end projects out beyond the top of the sleeve. The operator's grip is next shifted on the cannula from below to above the sleeve, and he steadies the cannula by its upper end, as the sleeve passes down it into the abscess cavity. If the cannula cannot be steadied by its upper end and prevented from passing downward into the brain while the sleeve is being advanced into the abscess, there is great danger that both cannula and sleeve might progress together, and the tip of the cannula be plunged through the inner wall of the abscess. Once the sleeve and tube are in place, the cannula and sleeve are withdrawn, leaving the silver tube in the abscess cavity as shown by the escape of pus through its lumen. A soft rubber drainage tube is now passed down through the silver tube into the abscess and the tube withdrawn. By the use of this instrument we have been able to place a drainage tube accurately in any abscess cavity no matter how deeply seated, with a minimum of trauma.

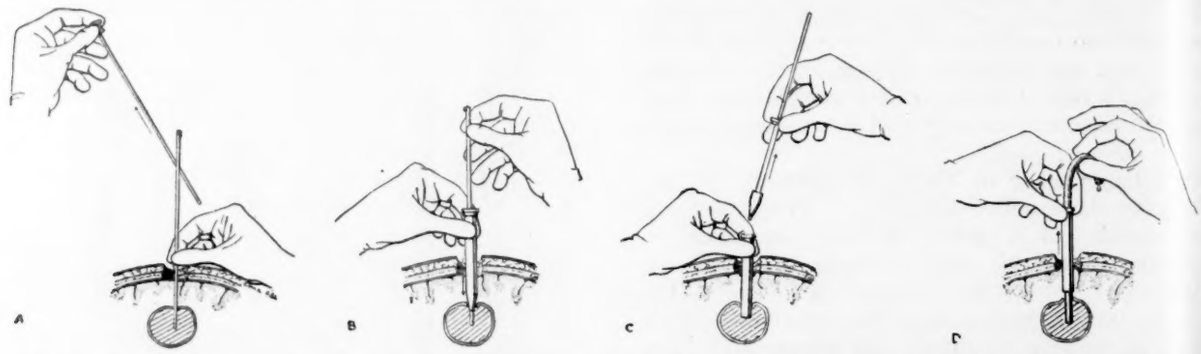

Fig. 2.—Diagram to illustrate the method of using the brain cannula. *A*, the cannula is in the abscess, with the stylet withdrawn. *B*, sleeve and tube passing down the cannula into the abscess. The cannula is made long so that its upper end may be grasped above the descending sleeve, thus securing the cannula and preventing it from passing down into the abscess with the sleeve. In this way puncture of the inner wall of the abscess is prevented. *C*, cannula and carrier withdrawn, leaving the silver tube in the abscess cavity. *D*, rubber drainage tube introduced accurately into abscess cavity through the silver tube. The silver tube is then withdrawn, the rubber tube being left in place.

COMMENT

It would appear from an analysis of the series of cases studied that the diagnosis and localization of brain abscess are no more difficult than for any other intracranial lesion. Ventriculography was used only four times as an aid in determining the situation of the lesion. In a fifth case, the abscess was encountered when an attempt was made to reach the lateral ventricle.

Drainage of a brain abscess before encapsulation has occurred has been uniformly disastrous in our experience. We admit that but one method has been employed. Possibly King's [2] technic, or the use of the Moser drain, might have given better results. Furthermore, we confess that we cannot describe any clinical symptoms that indicate with certainty that the infection is definitely localized. The figures presented seem to suggest that operation is most successful after the fourth or sixth week following the onset of definite symptoms. We are in entire agreement with the statement of McKenzie [5] that most cases in which an abscess of the brain is suspected are not surgical emergencies. Time should always be taken for careful study and complete examination so that localization is as accurate as possible. The high percentage of correct diagnosis in this series is due to a policy of delay until all studies are completed. If increased pressure was present, hypertonic solutions by vein were used to combat it. If the situation grew too acute, a trephine opening was placed over the area most strongly suspected, so that an emergency tap could be made promptly if necessary. Only two patients died because operation was delayed too long. Fourteen died because operation was performed too soon.

In the treatment of brain abscess, the surgeon is on the horns of a dilemma. Determination of the proper moment to drain an abscess is a critical point in successful treatment. If he operates too promptly, he may spread infection rather than evacuate it. If he delays too long, the abscess may rupture into the ventricle or subarachnoid space with disastrous results.

2. King, J. E. J.: Surg., Gynec. & Obst. **39**: 554 (Nov.) 1924.
3. Dandy, W. E.: Treatment of Chronic Abscess of the Brain by Tapping, J. A. M. A. **87**: 1477 (Oct. 30) 1926.
4. Cahill, H. P.: Laryngoscope **40**: 365 (May) 1930.
5. McKenzie, K. G.: The Treatment of Abscess of the Brain, Arch. Surg. **18**: 1594 (April) 1929.

We feel strongly that delay is preferable to fumbling haste and imperfect localization. Delay permits the brain to wall off the infection, to build up resistance to the particular organism and, by encapsulation, to reduce its virulence. That three of four patients with well encapsulated abscesses recovered following simple tap and evacuation of pus from the cavity shows that in time these abscesses become sterile or the virulence of the infecting organisms becomes so attenuated that the defense mechanism of the brain can handle the situation, provided we do not handicap it by too much traumatism of the adjacent areas. A more accurate localization enables the surgeon to place the trephine opening in the skull in the best possible position to obtain free drainage.

Only one method of drainage has been used in this series, the insertion of a small rubber tube. This technic has been used because thereby a minimum of trauma to adjacent tissue results. We feel that our mortality has resulted for the most part from a spread of the "cerebritis" about the abscess due to ill timed drainage or too much trauma resulting from bungling attempts to insert a drain. Frank meningitis has been a terminal event in only a little less than half the cases. In a third of those in which meningitis developed the infection appeared over a week after drainage was instituted, suggesting a gradual spread of "cerebritis" into the subarachnoid space rather than its development as a direct result of the original operation.

CONCLUSION

An attempt has been made to determine the influence on the mortality from brain abscess of the following factors: difficulty in diagnosis and localization, time of treatment and method of treatment.

Our conclusions are as follows:

1. Brain abscess is not more difficult to diagnose and localize than any other intracranial lesion, provided sufficient care is taken in the study of the case.

2. A brain abscess should not be drained until it seems certain that encapsulation has occurred, preferably in the sixth week after the onset of symptoms.

3. Drainage by a small rubber tube has given satisfactory results. No matter what method is used, unnecessary trauma to surrounding tissue is to be scrupulously avoided.

ABSTRACT OF DISCUSSION

DR. ERNEST SACHS, St. Louis: I think everybody is agreed that the principle Dr. Grant laid down, that one should not operate on an abscess until it is chronic, is sound if one can wait that long. But it has been my experience, unfortunately, that one sees cases in which it is impossible to wait until one thinks a capsule is formed. Just how long it takes for a capsule to form, I don't know; certainly based on other pathologic evidence, a number of weeks. There is one point in Dr. Grant's paper that strikes one forcibly, and that is that in all the cases, whether encapsulated or unencapsulated, the treatment was the same. I should like to raise the point whether some of the patients in this distressing group of cases in which the abscess is apparently probably not yet encapsulated might not be saved if a different method of treatment was used than is used in the encapsulated abscess. A recent case has brought this home. Sudden unconsciousness necessitated action and a brain abscess was aspirated without draining. The patient made a complete recovery. I believe the procedure plays an important rôle, and what I am doing now in the chronic abscesses (and of course I always wait if I possibly can) is to aspirate the abscess repeatedly, if necessary, and not drain at all. I hope that this method of procedure will perhaps enable me to save some of these patients with unencapsulated abscesses. A condition that is not so very different, I think, might be cited. Thoracic surgeons are strongly opposed to opening a chest that contains fluid unless there is frank pus, but a stage is reached frequently in which the chest is so full of fluid that in order to relieve the pressure symptoms they have to evacuate the fluid, but they don't drain. If they drain too soon, they are likely to get a fatality. That condition might be compared to this condition of an acute abscess in which one can't afford to wait. I quite agree with Dr. Grant that one should wait if possible until the abscess is encapsulated. Even then, I believe, unless the capsule is right near the surface, it perhaps is wiser to aspirate and not drain. In two cases I have used King's method of marsupializing the abscess when the abscess was near the surface of the cortex, and both of the patients got well, but I think that was due to the localization of the abscess near the surface, so that meningitis did not occur and pus did not get into the subarachnoid space. There is one other point on which I don't quite agree with Dr. Grant: in my experience the diagnosis of brain abscess is often vastly more difficult than the diagnosis of a tumor. I have seen a number of cases of brain abscess in which I not only could not make a localization but I was unable to tell whether there was an abscess.

DR. R. E. SEMMES, Memphis, Tenn.: In regard to the question of whether encapsulation has taken place, in my experience the general signs of sepsis have been a good index and I have waited until the temperature became normal and until the leukocyte count dropped to normal. I also think with Dr. Sachs that when the abscess has been located with a ventricular needle the nature of the pus should determine what is done. I have followed the plan of tapping the abscess and having a smear made immediately at the table. If the abscess is encapsulated and the pus is sterile, no drain is inserted, the abscess simply being drained by tapping, and retapping if necessary. If organisms are demonstrated by smear, I put in a small tube drain; but I think that if through accident or necessity one has to tap an abscess before encapsulation has taken place, in these cases one should not insert a tube. It will be time enough later after repeated tappings, if it becomes necessary on account of refilling, to insert a drain. The next most important thing in determining mortality, I think, is the situation of the abscess. Perhaps I have had bad luck with cerebellar abscesses, but in my experience they have been much more apt to be fatal regardless of encapsulation or even what is found in the pus. I believe one should not put a drain in a cerebral abscess. In the small subtemporal space, edema following trauma and secondary encephalitis is so dangerous that tapping alone should be employed. I think that in the average case of brain abscess, especially when encapsulation has taken place and when few or no organisms are found, the continued trauma accompanying a foreign body, such as a tube in the brain, is more harmful than helpful.

DR. FRANCIS C. GRANT, Philadelphia: Dr. Sachs and I are in accord except possibly in minor details. Given a patient, such as he described, who has had mastoiditis for a considerable time, with headache, and the sudden appearance of increased intracranial pressure, there is no question as to what should be done. The abscess should be searched for and found, no matter what the stage in its development may be. It has been my routine under such conditions, if I think that the patient harbors an abscess but am not sure, to make a preliminary trephine over that area in the brain in which the abscess was believed to be situated. Then, if and when the crisis might occur, it would be possible with the least possible loss of time to evacuate the pus. As far as tapping of the abscess is concerned, there again I am in entire accord with Dr. Sachs. I have had five cases in which tapping has been done without the insertion of a drain, and four of the patients recovered. That a simple tap without the insertion of a drain is successful simply bears out the point that I tried to emphasize in the paper; namely, that it is the use of the minimum of trauma in the evacuation of pus that is of great importance. In these cases of abscess the patients are much more likely to die from the spread of cerebritis following the rough and fumbling insertion of a drain than they are from any other cause. By clumsy manipulation at the time the abscess is drained, the infection may easily be spread out into normal brain tissue. As a result, the defense mechanism of the brain must again attempt to localize the infection and is handicapped by the presence of the

drainage tube. I would repeat, therefore, that to insure successful results it is important to avoid all possible trauma in the insertion of a drain. With regard to the high percentage of correct localization of abscess, I was as surprised at this as was Dr. Sachs, but I feel that by delay and carefully repeated examinations one is able to make a shrewd guess as to the presence and position of the lesion.

THE TREATMENT OF PERNICIOUS ANEMIA WITH DIGESTED LIVER

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AND
W. M. THEBAUT, JR., A.B.
SAN FRANCISCO

Since the work of Minot and Murphy,[1] in 1926, the presence of a substance in liver, effective in producing remissions in pernicious anemia, has been repeatedly demonstrated. More recently, Castle [2] has shown that the digestion of beef in normal gastric juice leads to the formation of an effective substance, possibly identical with that present in liver. The nature of the substance in beef responsible for this reaction is not definitely known but it is conceivable that the same substance may also be present in liver, in addition to the effective agent already there. If so, the digestion of liver with normal gastric juice should give a material more potent in pernicious anemia than whole liver.

Walden and Clowes [3] have succeeded in increasing the potency of liver by mixing it with stomach tissue. The details of the method have not been published, but they mention that they had some preliminary difficulty in obtaining a potent product. Reimann [4] has also reported marked increases in the potency of liver by digestion in normal gastric juice obtained after histamine stimulation. He succeeded in obtaining typical remissions in pernicious anemia with as little as 10 Gm. of digested liver daily. Some time ago we carried out an experiment similar to the experiments of Reimann but did not report the results. In view of the disagreement between our results and those of Reimann, it seems worth while to record the experiment. The response of a patient with typical pernicious anemia to treatment with digested liver is shown in the accompanying chart. The digestion was carried out by the method of Castle and Townsend,[2] finely ground liver and normal gastric juice, obtained from a number of normal subjects after the subcutaneous injection of histamine, was used. The amounts of liver used are shown in the scale on the left side of the chart. The quantities of gastric juice varied from 120 to 160 cc. per hundred grams of liver. Treatment was started with 25 Gm. of liver daily for ten days. During this treatment there was a slight increase in reticulocytes to about 10 per cent but no change in the red cells or hemoglobin. The dose of liver was then increased to 50 Gm., 100 Gm. and finally 200 Gm. daily. No definite response was noted until the dose of 200 Gm. was reached, when a typical remission occurred. Treatment was then carried on with desiccated hog stomach.

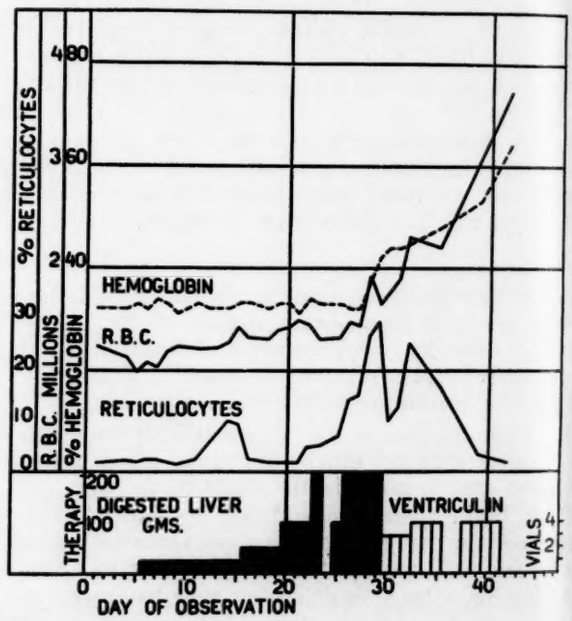
From the Department of Medicine, Stanford University Medical School.

1. Minot, G. R., and Murphy, W. P.: Treatment of Pernicious Anemia by a Special Diet, J. A. M. A. **87**: 470 (Aug. 14) 1926.
2. Castle, W. B.: Am. J. M. Sc. **178**: 748 (Dec.) 1929. Castle, W. B., and Townsend, W. C.: Ibid. **178**: 764 (Dec.) 1929.
3. Walden, G. B., and Clowes, G. H. A.: Proc. Soc. Exper. Biol. & Med. **29**: 873, 1932.
4. Reimann, F.: Med. Klin. **27**: 880 (June 12) 1931.

This response differs in no way from what one would expect after the feeding of the same amounts of whole liver. There is no evidence, from these results, that digestion has any effect on the potency of liver in producing remissions in pernicious anemia.

Since there are two possible sources of the effective substance in the mixture used, it is not possible to tell whether that already present in the liver or that formed by the digestion was responsible for the remission. In the latter case, since there was no apparent increase in potency, the destruction of that already present would have to be assumed.

To determine the effect of digestion on the effective substance already present in liver, a second patient with pernicious anemia was treated with a single dose of twenty-four vials of liver extract No. 343 digested in 120 cc. of normal gastric juice in the same manner in which digestion of the liver was carried out. The initial red count was 895,000, the hemoglobin 19 per



The response of a patient with pernicious anemia to treatment with digested liver.

cent and the reticulocytes 2.8 per cent. The reticulocytes increased to 35.2 per cent on the fifth day and the red count to 2,050,000 and the hemoglobin to 38 per cent on the tenth day. This response is exactly what one would expect from twenty-four vials of untreated liver extract. The antianemic factor in liver is evidently not destroyed by digestion.

SUMMARY

The response of certain patients with pernicious anemia to treatment with liver and liver extract digested in normal gastric juice differs in no particular from what would be expected from the same quantities of liver and liver extract, undigested.

These results suggest that the increase in potency of liver when mixed with stomach tissue observed by Walden and Clowes is not alone a result of digestion of liver protein but may be due to a summation of the potent material already present in liver, in stomach tissue and possibly small amounts formed by digestion. We are unable to explain the discrepancy between our results and those of Reimann.

BOTULISM IN NORTH DAKOTA

REPORT OF OUTBREAK OF THIRTEEN FATAL CASES

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In reviewing one of the early biennial reports of the North Dakota State Board of Health we find that an outbreak of so-called ptomaine poisoning occurred at Mayville in June, 1895. The victims, all of whom died, had eaten some canned cove oysters from the same can, and all of those who had eaten of the oysters were affected. The symptoms recorded were:

> Disturbed vision, swollen tongue, difficulty in speaking and swallowing, the latter increasing until patient was unable to swallow at all. Complete paralysis of pharyngeal and esophageal muscles for several hours before death. Heart action toward end feeble. Duration forty to sixty hours.

In the light of present knowledge, these were undoubtedly cases of botulism.

The first recorded outbreak of botulism in North Dakota occurred in June, 1930, at Golva, Golden Valley County, with four fatal cases reported. North Dakota suffered its second reported outbreak of botulism in 1931, which incidentally was the largest outbreak ever to occur in this country in a single community from a single common cause, and occurred within eight months after the outbreak at Golva.

A midnight lunch consisting of buns, hot boiled wieners, vegetable salad, light spice cake, light cookies and coffee was served in connection with a party given at a farm home near Grafton, Walsh County, on the evening of Jan. 29, 1931. The salad consisted of diced carrots, peas and cut string beans, served on a lettuce leaf, with whipped cream dressing. The carrots, peas and string beans were from a "batch" home canned the previous season by the so-called cold pack method, a copper wash boiler having been used instead of a pressure cooker. The canning receptacles used were glass jars with both metal and glass caps. The host family had been eating of this "batch" of vegetables during the fall and winter without previous ill effects. A history of disease among the animals or poultry on the farm was not obtainable.

Sixteen of the seventeen present partook of the entire lunch, one guest declining to eat the salad because he never ate vegetables in any form; subsequently he did not become ill. Thirteen of the sixteen who ate of the salad afterward became ill and died. The remaining three who ate of the salad and did not subsequently become ill therefrom were intoxicated at the time of eating, had been nauseated and vomited before lunch was served, and vomited again during or just after lunch. "Moon" or "hootch," home-made beer, and wine were the liquors consumed by several who attended the party. It did not enter into the cause of death, however, as five of the victims who died did not take a drink of liquor in any form.

The ages of the patients ranged from 15 to 45 years. The time intervening between the ingestion of the poisoned food and the onset of the disease ranged from 16 to 108 hours, with an average of 31.8 hours. The duration of the disease ranged from 12 to 120 hours, with an average of 34.5 hours.

REPORT OF CASES

The first victim was a housewife, white, aged 38. The onset took place sixteen hours after ingestion of the poisoned food. This patient had eaten a double portion of the salad, her husband having refused his portion because he never ate vegetables in any form. The symptoms in the order of their appearance were dizziness, muscular weakness, diplopia, vomiting, constipation, difficulty in swallowing, muscular paralysis (she could not help herself in bed); respiration was normal in rate but very superficial; the patient appeared toxic and said but little; the pulse rate was 80 until during the last hour and then became rapid up to 120-140. The temperature was normal; blood pressure 125 systolic and 75 diastolic; reflexes were normal; the pupils equal. Death occurred forty-eight hours after ingestion of the poisoned food and thirty-two hours after the onset of the disease; there was marked quietude, no struggle and extreme cyanosis. The pulse was perceptible for several minutes after respirations ceased. The immediate cause of death was respiratory paralysis.

The twelfth victim was a white man, aged 26, single, who did general labor. The onset occurred thirty hours after ingestion of the poisoned food. On arising in the morning, he complained of dizziness and diplopia and was nauseated. Throughout the entire day the same symptoms persisted but did not increase. Diarrhea followed an oil cathartic. Twenty-four hours after the onset he complained of difficulty in swallowing and talking; the tongue was "thick." The blood pressure was 115 systolic and 70 diastolic, pulse 80, temperature normal. There was no muscular weakness until the afternoon of the second day. He slept well the first night, with no illness except for the diarrhea, but he became restless the second night and remained so until death. There was labored respiration in the afternoon of the second day and he was unable to extend the tongue from the mouth. Forty-eight hours after the onset he suffered choking spells, later strangling frequently. Cyanosis developed. The sensorium was clear. Death occurred fifty-two hours after the onset of the first symptoms. The immediate cause was respiratory paralysis. The pulse rate shortly before death was 100 and the temperature was subnormal. The pulse continued strong for several minutes after respirations ceased.

The last victim was a white man, aged 23, single, a laborer. The onset of symptoms occurred 108 hours following ingestion of the poisoned food. There was muscular weakness; he fell down and was unable to arise. Visual disturbance appeared on the second day of illness and consisted of blurred vision only. During the first three days of illness he was about town, attended the funerals of his fellow victims, testified before the coroner's hearing, and was interviewed by one of us and by other investigators. He first experienced difficulty in swallowing solids on the third day of illness but had no difficulty in swallowing liquids at any time. Muscular weakness was pronounced on the third day. He refused hospitalization. On the fourth day, while running down an alley in response to a volunteer fire call, he fell; being unable to arise, he was picked up by friends and taken to the hospital. Muscular weakness was marked; he was unable to turn himself in bed without great difficulty. The sensorium was clear until death. He was restless most of the time and slept poorly. Respiration was rapid but quiet, superficial but not labored. The pulse was from 100 to 140, gradually increasing up to the time of death. The temperature was from 100 to 102 F. The blood pressure was 110 systolic and 70 diastolic. The urine was normal. Death occurred suddenly from respiratory paralysis, five minutes after the patient had sat up in bed and taken liquid nourishment (a bowl of soup), 120 hours after the onset of symptoms. There was little cyanosis and no struggling.

COMMENT

The general symptoms, elicited by other victims with few exceptions, were as follows: 1. Diplopia followed blurred vision, changing to dimness of vision. 2. There was difficulty in speech proceeding to complete aphonia. 3. Constipation was the rule; some of the victims failed to be relieved with all available measures, while one suffered diarrhea with green paint-like stools. 4. The patients were unable to protrude the tongue beyond

the teeth and to expel accumulated mucus from the throat. 5. Most of the patients evinced restlessness and intense fear of death. 6. The temperature was subnormal in all but two cases. 7. One of the attending physicians described the appearance of the throats as similar to one anesthetized locally for tonsillectomy. 8. Death was due to strangulation or respiratory paralysis in all cases. Heart action continued in one case for six minutes after the respirations ceased.

POISONED FOOD INVOLVED

Unfortunately, none of the original salad material was obtainable. However, the vegetable mixture of diced carrots, peas and cut string beans, which entered into the formation of the salad, was undoubtedly the infected food. This conclusion is arrived at by the process of elimination. The wieners and lettuce were the only other foods that could have entered into the cause. The wieners were from a batch of some 150 pounds, made up by the local meat market two days previously and sold indiscriminately to the local trade. The lettuce had been purchased on the open market. No other food poisoning cases occurred in the community except among those who attended the party and ate of the lunch served at midnight. The wieners had been boiled just previous to being served, which would have rendered them safe even though they had been infected. In addition, two younger children of the host family, who had retired before lunch was served, ate some of the remaining wieners for breakfast the following morning and for lunch at school that day, without ill effects. Alcoholic beverages consumed were ruled out for the reason that five of the victims did not drink at all, and of those who did, three did not become ill.

Samples of the suspected food were secured from the host's family larder and sent to the State Public Health Laboratories at Grand Forks and Bismarck, to the State Regulatory Department, Bismarck, to the Agricultural College, Fargo, and to the University of Chicago Laboratory, Chicago. A summary of the reports of the various laboratories is given in the table.

LABORATORY EXAMINATIONS

As already stated, specimens of the suspected canned vegetables were secured for a bacteriologic examination and sent to five different laboratories. Four jars of the mixture of diced carrots, peas and cut string beans were secured from the pantry and cellar, from the same supply as the vegetables used for the salad.

The material in the jars was a juice of the vegetables together with solid portions of them. The liquid was cloudy and the contents of the jars gave off a sour, rancid, limburger cheese-like odor. There was visible gas production. The five laboratories to which the samples were submitted followed in general the same technical methods of procedure for isolation and identification of Bacillus botulinus and its toxin, namely:

1. Direct microscopic examination of material.
2. Toxicity tests on the original material.
   (*a*) Inoculation.
   (*b*) Feeding.
3. Cultural examination for B. botulinus.
4. Toxicity test of the cultures.

In addition to these procedures, Dr. W. E. Carey of the University of Chicago secured specimens of spinal fluid, blood and a section of the ascending and transverse colon, with its contents, from the twelfth victim. These were taken to the University of Chicago, Department of Hygiene and Bacteriology, for study. A comparative summary of the reports of the various laboratories is given in the accompanying table.

An evaluation of the laboratory results is rather difficult to make. In general, the results agree quite closely. A gram-positive spore bearer was found by two laboratories, a gram-positive rod by one, two laboratories not reporting this examination. A general agreement of four laboratories on feeding test with guinea-pigs, chickens and mice indicates that the samples were nontoxic by this method. Three laboratories reported the material nontoxic by subcutaneous or intraperitoneal injection. One laboratory found the material toxic but did not carry out antitoxin protection tests. All five laboratories were in agreement that the material did not contain B. botulinus as indicated by the cultures made of the original materials. This of necessity removes the possibility that the one laboratory reporting the original food toxic had found the toxin of B. botulinus. There can be only two interpretations of the laboratory work done on the toxicity of the food and its bacterial flora:

1. The material submitted and examined was not the same as the material consumed at the host home.

2. The material under examination was nontoxic and the laboratory reports do not substantiate the hypothesis of a food infection with B. botulinus.

Only one laboratory received clinical material for examination, this consisting of blood, spinal fluid and a section of colon from the twelfth victim. The blood and spinal fluid were nontoxic. The report of the bacteriologic examination of the contents of the colon was reported as follows:

Several cultures were made from the section of the colon. One of these, on feeding to guinea-pigs, was found to be toxic.

Laboratory Results

Laboratory	Direct Microscopic Examination of Material	Toxicity of Original Food Feeding Tests	Toxicity of Original Food Injection	Culture of Original Food B. Botulinus	Toxicity of Blood and Spinal Fluid	Cultures from Colon
Dr. W. E. Carey, U. of Chicago	Not reported	Negative for guinea-pig	Not reported	Negative	Negative	Positive for B. botulinus type A in one culture
Dr. A. K. Saiki, U. of N. D.	Not reported	Negative for guinea-pig and mice	Negative for guinea-pig and mice	Negative	None submitted	None submitted
A. W. Ecklund, M.S., S. P. H. Lab., Bismarck	Gram-positive spore bearer	Negative for guinea-pig	Negative for guinea-pig	Negative	None submitted	None submitted
C. I. Nelson, Ph.D., N. D. A. C., Fargo	Gram-positive spore bearer	Not reported	Positive for guinea-pig; no antitoxic protection tests	Negative	None submitted	None submitted
E. M. Stanton, Regulatory Dept., Bismarck	Gram-positive rods; no spores	Negative for guinea-pig and chickens	Negative for guinea-pig	Negative	None submitted	None submitted

Protection tests with antitoxins A and B gave protection with type A antitoxin but not with type B. This demonstrates the presence of B. botulinus type A in the intestine of one of the victims and it indicates the Grafton outbreak was due to type A botulinus.

This one single factor is all that the laboratories offer to substantiate the clinical diagnosis of botulism. Even though this seems rather meager evidence, the fact cannot be overlooked that B. botulinus type A was isolated from the intestine of one of the victims, in spite of the fact that the food examined was unquestionably nontoxic.

NECROPSY

The macroscopic and histopathologic observations on the twelfth victim, as noted by Drs. French and Saiki of the University of North Dakota School of Medicine, Grand Forks, were confirmatory of botulism intoxication. General congestion of all internal organs was noted, especially those of the central nervous system. The basal ganglion showed slight congestion, with chromatolysis of the ganglionic cells and disappearance of Nissl granules.

No specific pathologic changes in bodies dead from botulism have been definitely recognized in the past. The observations in this case, however, are in close harmony with observations on record of former cases. All, therefore, strongly support the clinical diagnosis of botulism poisoning.

DIAGNOSIS

The diagnosis of botulism, although a rare disease, from the clinical symptoms alone, when established, entails no serious entanglements to the trained mind of the skilled physician. Dr. M. W. Lyons of Sentinel Butte, who attended the four patients of our first recorded outbreak, and Drs. G. M. and C. J. Glaspel, C. R. Thompkins and F. W. Deason of Grafton, who attended the patients of the second and most recent outbreak, made positive diagnoses of botulism prior to the death of the first victim. Not one of these physicians had previously seen a case of botulism.

TREATMENT

General.—The general treatment carried out was that of heavy catharsis, forced liquids, rest in bed, liquid diet, and, toward the end, respiratory and cardiac stimulants. Sedatives were required in some cases. All patients were hospitalized or under a nurse's care in their home.

Specific.—Specific treatment with botulinus antitoxin was not resorted to either prophylactically or therapeutically, for the reason that it was not available until twelve of the victims were dead and the thirteenth already ill, and the available supply was insufficient to offer any therapeutic advantage.

Antitoxin.—Botulinus antitoxin type A and B combined, as supplied by Jensen and Salisbury, Inc., Kansas City, Mo., sole commercial manufacturers of the product in the United States, was administered to one of the three survivors on the eleventh day following the fatal party. The attending physician, W. H. Long, from the Dakota Clinic, Fargo, kindly furnished the following report:

> The ocular movements were good, the pharyngeal reflexes normal; there was a definite nystagmus to the right, to the left and vertically. The temperature was normal, the pulse 80.
>
> It was thought best to give the antitoxin, so the patient was tested by the intradermal method and then given 1 cc. of the antitoxin. After half an hour, the remainder of the 1,000 units was given. That night she was very ill; her legs were weak and she fainted while climbing the stairs to retire. I saw her the following day and the nystagmus was much increased, but there were no other symptoms. On the second day the nystagmus was still present, and on the fourth day she developed a mild serum reaction. Subsequently the patient completely recovered.

SUMMARY

1. Diagnosis of botulism, type A in the Grafton outbreak was confirmed by the University of Chicago laboratory, from a section of the colon of one of the victims.

2. The vegetable mixture of diced carrots, peas and cut string beans served in the salad was without doubt the poisoned food. This is concluded from the elimination of all other possible poisoned food and the suggestive laboratory observations on other similar canned vegetables.

RECOMMENDATIONS

1. The proper procedure in home canning of foodstuffs and their preparation before serving should be given the greatest possible publicity.

2. In case of an outbreak of botulism, all individuals known or suspected to have eaten of the poisoned food should receive a preventative dose of botulinus antitoxin, type A and B combined, at the earliest possible moment.

3. As the immediate cause of death in botulism is respiratory paralysis, it would seem feasible that artificial respiration or the use of a respirator should be resorted to in the last measure of treatment, in conjunction with the free use of botulinus antitoxin.

Clinical Notes, Suggestions and New Instruments

SUCTION IN OBTAINING ENDOMETRIAL BIOPSIES

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The diagnosis of intra-uterine lesions is frequently difficult and in many cases can be established only by the study of material obtained by curettage. In a recent study of endometrial hyperplasia it seemed desirable to obtain tissue from each patient at weekly intervals during the course of the disordered cycle. It was, of course, impossible to curet so frequently, and, furthermore, such tissue would have no value from the standpoint of study, as it would be impossible to gage the factor of regeneration.

Geist's [1] method of studying the morphology of menstrual blood had seemed a solution in cases in which actual bleeding occurred. In a case of this type, in which the cervix was open, we inserted a small catheter into the uterus and aspirated the bloody uterine contents. In this instance a sufficient quantity of tissue was obtained to indicate that endometrium was actually sucked into the catheter. Martin and Ellis [2] and others had previously used the principle of aspiration and needle puncture in obtaining tissue from deep-seated lesions, but, so far as we can determine, the method of aspiration has not been applied to the uterus. It is not, however, our intention to claim priority but simply to call attention to a method that has proved useful to us.

The method is as follows:

An ordinary Keyes-Ultzman cannula, which in reality is nothing more than a rigid hollow uterine sound with perforations at the tip, was used. Its use has been reported in a previous communication.[3]

From the Department of Obstetrics and Gynecology, Vanderbilt University School of Medicine.

1. Geist, S. H.: Morphology of Menstrual Blood, Am. J. Obst. & Gynec. **22**: 532-542 (Oct.) 1931.
2. Martin, H. E., and Ellis, E. B.: Biopsy by Needle Puncture and Aspiration, Ann. Surg. **92**: 169 (Aug.) 1930.
3. Burch, J. C., and Klingler, H. H.: Endometrial Biopsy by Suction, J. Tennessee M. A., to be published.

While the results with this instrument have proved satisfactory in a number of cases, it was frequently difficult to insert the instrument on account of its rigidity. A Luer or all-glass type syringe was attached to the cannula. However, numerous syringes were broken in withdrawal and suction due to the stress at the junction of syringe and cannula. This made it necessary to substitute a tube constructed of malleable copper and attached to a record syringe. Another instrument, also made of copper but with a small curet with closed back, was also constructed. We were not able to obtain good results with the curet head. The simple copper tube, however, has given excellent results and has been in use in the outpatient department for some time. No bad results have been noted. Most patients complain of mild discomfort, but in no instance has an anesthetic or analgesic been necessary.

The technic is briefly as follows: The patient is placed in the lithotomy position. Cervical exposure is obtained by means of a bivalve speculum. The cervix is cleansed of mucus and the os painted with mercurochrome-220 soluble. The tube is inserted into the uterus and bent slightly, depending on its position. When the cannula comes to rest against the uterine wall, the syringe is attached to the cannula and strong suction is made, while slight pressure keeps the tip of the cannula in contact with the uterine mucosa. While suction is maintained, the cannula is withdrawn for about half an inch and then released. The instrument is then rotated slightly, so that on reinsertion it will come to rest on another part of the mucosa. This process is usually repeated about three times, and the instrument withdrawn during continuous suction. The apparatus is carefully washed with solution of formaldehyde by drawing the fixative back and forth several times in order to remove all the particles of tissue from the apparatus. It is then carefully washed out and sterilized and is ready for use again.

We believe that as much information can be obtained by this method as by diagnostic curettage, except in cases of very small early circumscribed endometrial carcinoma. This condition should always be thought of when the symptoms are not in accord with the study of the curettings or when the results of treatment are unsatisfactory. In such instances, curettage should be performed without delay.

CONTACT DERMATITIS IN AN ANESTHETIST, DUE TO "AVERTIN" (TRIBROM-ETHANOL)

GEORGE V. KULCHAR, M.D., PHILADELPHIA

Since the introduction of "Avertin" in 1925 it has been used extensively as a general anesthetic. Numerous reports have appeared describing renal and hepatic damage following its use. Further studies have shown, however, that the impairment of renal and hepatic function is for the most part slight and transient. This has been substantiated by the recent work of Bruger, Bourne and Dreyer.[1] There have been, however, no reports of toxic eruptions directly attributable to "Avertin," and the case reported here of cutaneous sensitization following repeated prolonged exposure in the handling of the drug by an anesthetist is the first to come to my attention. Survey of the literature seems to indicate that "Avertin" as an anesthetic will probably come into even more extensive use in the future, owing to its relative safety and ease of administration.

In this country "Avertin" is dispensed in the form of "Avertin Fluid." This is a 100 per cent solution of tribromethyl alcohol (Avertin) in amylene hydrate. For the induction of anesthesia, a 3 per cent solution of the "Avertin Fluid" is made up in water at 40 C. This is instilled rectally by means of a tube. Owing to the very labile molecular structure of tribromethyl alcohol, heating above 45 C. results in the formation of dibromacetaldehyde and hydrobromic acid. The former appearing in improperly prepared solutions gave rise to numerous instances of rectal irritation reported following the introduction of "Avertin." The presence of dibromacetaldehyde is now tested for as a routine with congo red before instillation. With this precaution, the instances of irritation have greatly decreased. It seems unlikely that these represent true instances of sensitization to the drug.

From the Department of Dermatology and Syphilology, University of Pennsylvania School of Medicine, John H. Stokes, M.D., director.

1. Bruger, Maurice; Bourne, Wesley, and Dreyer, N. B.: Effects of Avertin on Liver Function, Am. J. Surg. **9**: 82-87 (July) 1930.

REPORT OF CASE

Miss N. M., aged 28, an anesthetist, was seen on Nov. 27, 1931, at which time the dorsal and volar surfaces of all the fingers and the palms of both hands were deeply erythematous, fissured and exfoliating. No vesiculation was noted and the nails appeared normal. Careful inquiry into the family and past histories revealed nothing of importance. The patient had been administering "Avertin" as an anesthetic extensively for the past twelve months. For the past six weeks she had noted itching and burning of the fingers and palms whenever exposed to "Avertin," and the eruption had been present four weeks. There had been no previous dermatitis, although exposure had been repeated and prolonged prior to the onset of the present eruption. On physical examination, nothing abnormal was noted except for the dermatitis of the hands. Close inspection of the feet and intertriginous areas revealed no evidence of a mycotic infection. Scrapings made from the fingers were negative for fungi. The blood Wassermann reaction was negative.

Because of the itching and burning noted by the patient after handling the "Avertin Fluid" and the accentuation of the process on the fingers handling the rectal tube, a sensitization was suspected. According to the method described by Jadassohn,[2] patch tests were made with the fluid in dilutions varying from 25 to 100 per cent. After forty-eight hours definite positive reactions, consisting of an erythematous miliary papular eruption localized to the area of application, were noted with all dilutions. The controls were negative. Within forty-eight hours after the removal of the patch tests, the eruption became vesicular. The positive reactions persisted for eight days, the late stages resembling a chronic eczematoid dermatitis. On repetition of the patch tests the same results were obtained, a brawny indurated plaque resulting from one application. During the repetition the patient chanced to sleep with her forehead resting on a patch test being made with 50 per cent solution of "Avertin Fluid." Two days later a miliary papular eruption appeared over the contact area on the forehead. In order to determine whether the "Avertin" or its solvent, amylene hydrate, was the cause of the sensitization, patch tests were made with the latter in the same dilutions. These were negative.

The patient was instructed to use rubber gloves over cotton gloves in making up and administering the anesthetic, a precaution heretofore not observed. Following the use of a 6 per cent crude coal tar ointment and small doses of x-rays, and the protective measures, the eruption cleared up in three weeks. Exposure to extremely minute amounts of "Avertin," as, for example, the handling of her operating room gown without gloves, has, however, resulted in definite recurrences. These have cleared up on the resumption of protective measures. Attempts at desensitization with crystalline Avertin itself were contemplated but have not been done, as the patient is at the present time free from eruption under the precautions observed.

With "Avertin Fluid" in dilutions of 25, 50 and 100 per cent, patch tests were made on a series of ten patients attending the clinic because of nonallergic dermatoses. In one instance a mildly positive reaction was noted with a 100 per cent solution in a patient who gave no history of exposure to the drug. A patch test with amylene hydrate was negative on this patient.

With the patient's serum taken at the time of the eruption, attempts were made at passive transfer, a slight modification of the Prausnitz-Küstner[3] method being used. This consisted of the application of the antigen to the site of the injection of the sensitive patient's serum as a patch rather than a scratch or intradermal test. Attempts made in three patients were unsuccessful.

As has been pointed out by Kesten and Laszlo,[4] occupational dermatitis and dermatitis venenata in most instances result from a local cellular sensitization to specific nonproteins acquired by previous contact. The contact with the sensitizing substance is often long and repeated before evidence of sensitization appears. Attempts to demonstrate circulating antibodies, however, by the passive transfer method in sensitized patients have

2. Jadassohn, J.: Hautkrankheiten bei Stoffwechselanomalien, Fifth Internat. Dermat. Kong., Berlin, 1904, pt. 2, p. 231.

3. Prausnitz, C., and Küstner, H.: Studjen über die Ueberempfindlichkeit, Zentralbl. f. Bakt. **86**: 160, 1921.

4. Kesten, Beatrice, and Laszlo, Elizabeth: Dermatitis Due to Sensitization to Contact Substances, Arch. Dermat. & Syph. **23**: 221-237 (Feb.) 1931.

given uniformly negative results. In the case reported, the exposure to the sensitizing agent, "Avertin," had been repeated and prolonged over a period of eleven months before any evidence of sensitization appeared. As the sensitization is probably confined to the cells of the epidermis, the attempts to demonstrate general sensitization by passive transfer methods would be expected to yield negative results.

SUMMARY

A case of contact dermatitis occurred in an anesthetist due to acquired local sensitization to "Avertin" (tribromethyl alcohol), a drug used for general anesthesia. Attempts at passive transfer were unsuccessful, the sensitiveness being established by patch test.

A PUMP AND MANOMETER FOR ADMINISTERING ARTIFICIAL PNEUMOTHORAX

T. T. WANG, M.D., AND C. M. VAN ALLEN, M.D.
PEIPING, CHINA

This instrument has been used by us for induction of pneumothorax in 30 cases of pulmonary tuberculosis and for refills of air on more than 553 occasions. It is preferred to the standard types of apparatus for giving artificial pneumothorax, which employ columns of water in bottles to displace air into the chest, because it is smaller, the operation is simpler, the air is under much more delicate control, the intrapleural pressure may be read more conveniently during the introduction of air, and the U-tube of the manometer is filled and refilled with water more easily. The pump can be used for various other clinical purposes as well, since it is capable of driving efficiently either gases or fluids.

The mechanical details of the pump have been described elsewhere,[1] and it is necessary here to point out only the chief characteristics. The pump consists of a wheel 14 cm. in diameter mounted vertically on a base, with shaft and bearings. A driving handle is attached to the shaft. A number of rollers are mounted at regular intervals along the periphery of the wheel, and they meet and press against a rubber tube, which

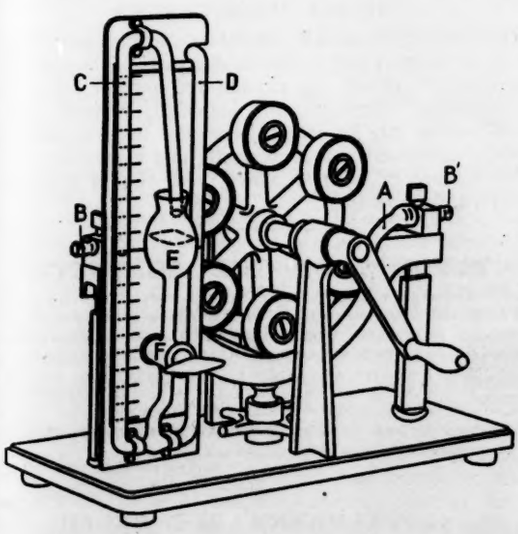

Fig. 1.—Front oblique view. The pump is shown partly covered on the left by the manometer. *A* indicates the rubber tube, which is compressed by the rollers, and *B* and *B'* the metal tubes to which it fastens. *B* serves for connection of the rubber tube leading to the pneumothorax needle (not shown). *C* and *D* are the distal and proximal limbs, respectively, of the U-tube of the manometer. *E* is the reservoir and *F* the stopcock for filling the U-tube.

lies in a semicircular track below the wheel and is fastened to short metal tubes at both ends of the track. Each metal tube has two arms for outside connections, one of which extends to the back and is guarded by a stopcock. An automatic counter records the number of revolutions of the wheel. Pumping is accomplished by turning the handle: the rollers drive the air in the tube ahead continuously and the elastic recoil of the tube draws more air in behind. The direction of pumping can be reversed merely by turning the handle backward. All parts of the pump except the rubber tube are metallic and durable, and the tube can be renewed easily.

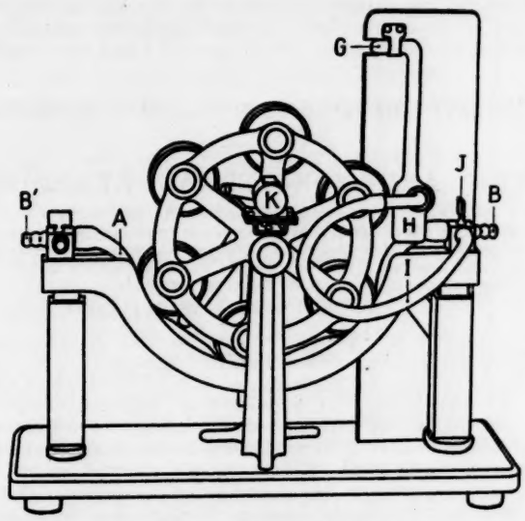

Fig. 2.—Back view. *A*, *B* and *B'* are the same as in figure 1. The proximal limb of the U-tube of the manometer appears at *G* from the front. *H* is the trap and *I* the connection to the side arm of tube, *B'*. *J* is the stopcock guarding that arm. *K* is the automatic counter.

The manometer is described here for the first time. It is carried on the left side of the pump. A small reservoir occupies the center of the manometer, with connection below to the bend and above to the distal limb of the U-tube. A stopcock is situated in the connection below the reservoir. The proximal limb of the U-tube passes above to a trap on the back of the manometer, the trap being connected in turn to the back arm of the metal tube on the same side of the pump. An adjustable scale lies behind the distal limb of the U-tube, with graduations reading from + 20 to — 20 cm. of water pressure.

The pump is calibrated simply, as follows: The stopcocks of both metal tubes are turned off and a piece of rubber tubing is attached to each of the two free arms of those tubes. The rubber tube on the right is led to water in a flask, while that on the left is led to an empty graduated cylinder. Pumping is then started, and the moment that water begins to appear in the cylinder the automatic counter is set at zero. Pumping is continued until a certain large amount of water has been displaced, for example, 500 cc. The number of revolutions is now read and the displacement per revolution, or per hundred revolutions, is calculated. This figure is applicable with sufficient accuracy in estimating the amount of air delivered for pneumothorax. Recalibration is necessary only at intervals of one or two months. The manometer is prepared for use by pouring water into the reservoir until full, opening the stopcock below the reservoir to allow the U-tube to fill, and closing the stopcock when the fluid levels in the U-tube reach the zero mark of the scale. Slight further adjustment can be made if necessary by sliding the scale up or down. At any time that the water in the U-tube is accidentally thrown out through the distal limb because of a sudden increase of pressure, it is automatically caught in the chamber and can be used again. Should the water be displaced from the U-tube in the opposite direction, it is caught in the trap and prevented from reaching the patient.

Additional apparatus consists in a pneumothorax needle of standard pattern and a few feet of rubber tubing to connect the needle to the free arm of the left metal tube of the pump. This rubber tubing is in two sections, joined together by a short glass tube filled with loosely packed cotton, and the cotton serves to filter the air. The needle and the section of tube next to it are the only parts that need to be sterile. With these attachments made, the counter is set at zero, the stopcock on the

From the Department of Medicine and the Department of Surgery, Peiping Union Medical College.

A few of these instruments may be obtained from the Peiping Union Medical College, Precision Shop.

1. Van Allen, C. M.: A Pump for Clinical and Laboratory Purposes Which Employs the Milking Principle, J. A. M. A. **98**: 1805 (May 21) 1932.

left metal tube is opened, and the needle is inserted in the chest wall. Arrival of the needle's point in the pleural cavity is indicated by characteristic oscillations of the water in the manometer. Without further adjustment, pumping is begun and carried on at an appropriate rate. It is stopped momentarily at any time that the intrapleural pressures require reading, since the manometric values during pumping are necessarily slightly elevated and only a moment of rest is required for equalization. A series of many readings is secured in each case, so that the changes in pressure during administration can be used as one of the guides for determining the amount of air to be given.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, Secretary.

TRIPHAL.—A product consisting essentially of sodium aurothiobenzimidazole carboxylate, $C_6H_3N:NHCSAu.COONa$, with a small amount of a product of indefinite composition. The sodium salt of a compound formed by the interaction of gold halides with thiobenzimidazole carboxylic acid. Triphal contains from 44 to 47 per cent of gold.

Actions and Uses.—Proposed for use as a gold salt in the treatment of lupus erythematosus. Foci of infection, if present, should be removed before beginning treatment with triphal. It is contraindicated in pregnancy, kidney disease, acute progressive pulmonary tuberculosis and intestinal tuberculosis. Patients receiving triphal should be kept away from strong sunlight and should receive no actinotherapy. Generalized pruritus may result from idiosyncrasy or metallic retention. The development of erythema or albuminuria indicates intolerance to the drug; on its appearance triphal should be discontinued and intravenous injections of sodium thiosulphate instituted.

Dosage.—For adults, initial dose, intravenously, 0.025 Gm. (⅜ grain), the dose being gradually increased to 0.1 Gm. (1½ grains) for children, average initial dose, 0.01 Gm. (⅙ grain), gradually increased, if possible, to 0.025 Gm. (⅜ grain) three times weekly.

Manufactured by H. A. Metz Laboratories, Inc., New York. U. S. patent 1,558,584 (Oct. 27, 1925; expires 1942). U. S. trademark 188,475.

Ampules Triphal, 0.025 Gm.

Ampules Triphal, 0.1 Gm.

Triphal occurs as a light yellow, odorless powder, readily soluble in cold water, insoluble in alcohol and ether. An aqueous solution of Triphal is slightly alkaline in reaction, is stable for only a short time, and is readily decomposed by heat. On addition of mineral acids to solution, a precipitate is produced, soluble on addition of excess alkali solution.

Dissolve 0.1 Gm. triphal in 1 cc. water; a clear solution results. Transfer 1 cc. of triphal solution (1: 200) to a clean test tube containing a freshly prepared solution of sodium stannite (prepared by adding sufficient stannous chloride slowly to 2 cc. of dekanormal sodium hydroxide solution, until the precipitate barely dissolves). Gently heat the solution to the boiling point; a metallic mirror is formed. To 3 cc. of solution (1: 200) add 1 cc. dekanormal sodium hydroxide solution and 0.15 cc. freshly prepared phenylhydrazine hydrochloride solution (1: 10); a blue color is produced, which appears reddish in reflected light. To 4 cc. of the solution (1: 200) add 0.15 cc. alkaline mercuric potassium iodide solution; a pronounced yellowish color is produced. Dissolve 0.1 Gm. of triphal in 3 cc. water, add 0.2 cc. of diluted acetic acid, and filter; the filtrate shows no brown coloration after adding 0.1 cc. of sodium sulphide solution. To 2 cc. of solution (1: 50) add 0.2 cc. diluted nitric acid and filter; to one half of the filtrate add 0.2 cc. barium nitrate solution; no precipitate occurs (*sulphate*); to the other portion of acidified solution add silver nitrate solution; not more than a faint turbidity appears (*halides*). To 4 cc. of triphal solution (1: 100) add 0.2 cc. sodium nitrite solution and 0.2 cc. diluted hydrochloric acid, followed by the addition of sufficient beta-naphthol solution (0.01 Gm. in 5 cc. of sodium hydroxide solution) that the precipitate formed redissolves; no red color appears. Ignite 0.1 Gm. of triphal in a porcelain crucible, extract the residue with normal hydrochloric acid, and filter; the filtrate gives a characteristic sodium flame test and yields a white precipitate with a solution of barium chloride.

Dry about 0.1 Gm. of triphal, accurately weighed, for eight hours at 100 C. The loss in weight should not be more than 8.0 per cent nor less than 6.0 per cent of sample weight.

Transfer approximately 0.2 Gm. triphal, accurately weighed, into a tared porcelain crucible, and ignite well at red heat. Extract the residue with six 5 cc. portions of normal hydrochloric acid solution; filter each portion through an ashless filter paper. Transfer the remaining residue to the filter and wash with five 3 cc. portions of water. Transfer filter and residue to crucible, dry, and ignite to constant weight. The weight of the residue corresponds to not more than 50.0 per cent and not less than 47.8 per cent of gold, calculated to the dried basis.

LIVER MEAL.—A mixture containing desiccated beef liver 81 per cent, malted milk 18 per cent, and powdered cinnamon 1 per cent.

Actions and Uses.—Liver meal is prepared to meet the need of a concentrated liver diet in a form that is palatable and convenient.

Dosage.—For children, one heaping teaspoonful three times daily; for adults, two heaping teaspoonfuls three times daily. Liver meal may be added to milk, soups, cereals or fruit juices but should not be cooked or boiled.

Manufactured by the Livermeal Corporation, Hoboken, N. J. No U. S. patent or trademark.

To prepare liver meal, fresh beef liver is ground and then coagulated in air-tight kettles at a temperature of 82 C. The liver is dehydrated in vacuo and powdered. The malted milk and powdered cinnamon are then added and thoroughly mixed. The manufacture is so regulated that no batch is more than thirty days old when shipped. The malted milk used complies with the government standard and has approximately the following composition: carbohydrates, 71.22 per cent; proteins, 14.48 per cent; fat, 8.15 per cent; ash, 3.43 per cent, and water, 2.72 per cent.

Liver meal is a light brown powder having a slight odor and taste of liver.

SCARLET FEVER STREPTOCOCCUS ANTITOXIN (See New and Nonofficial Remedies, 1932, p. 364), The National Drug Co., Philadelphia.

Scarlet Fever Streptococcus Antitoxin Refined and Concentrated (National).—It is prepared by inoculating horses with scarlet fever streptococcus toxin and live virulent cultures of scarlet fever streptococci, under U. S. patent 1,547,369 (July 28, 1925; expires 1942) by license of the Scarlet Fever Committee, Inc. It is marketed in syringe packages of 2,000 units (prophylactic dose); in syringe packages of 6,000 units (therapeutic dose); also marketed in single 1 cc. vial packages (for the diagnostic blanching test) containing sufficient scarlet fever streptococcus antitoxin for five tests.

Committee on Foods

GENERAL COMMITTEE DECISIONS

THE COMMITTEE ON FOODS AUTHORIZES THE PUBLICATION OF THE FOLLOWING GENERAL COMMITTEE DECISION ADOPTED FOR ITS OWN GUIDANCE AND FOR THAT OF FOOD MANUFACTURERS AND ADVERTISING AGENCIES ON FOOD ADVERTISING.

RAYMOND HERTWIG, Secretary.

VITAMIN AND MINERAL CONTENT OF DRIED VEGETABLES

To be acceptable, dried vegetables, either powdered or in other form, shall retain in highest degree possible with effective manufacturing methods the vitamin and mineral content of the raw vegetables. Products with materially reduced vitamin or mineral content may be accepted provided they are accompanied by labels and advertising prominently and appropriately declaring the vitamin or mineral content with respect to that of the natural vegetable used.

REPORTS OF THE COMMITTEE

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

UFFELMANN'S RYE BREAD

Manufacturer.—The Uffelmann Baking Company, Cincinnati.

Description.—Rye bread made by the straight dough method (method described in THE JOURNAL, March 12, 1932, p. 889); prepared from "clear" wheat flour, white and dark rye flours, water, yeast, salt, caraway seed and a sour ferment consisting of dark rye flour and water.

Analysis (submitted by manufacturer).—

	per cent
Moisture (entire loaf)	36.8
Ash	1.9
Fat	1.5
Protein (N × 6.25)	9.9
Crude fiber	0.5
Carbohydrates other than crude fiber (by difference)	49.4

Calories.—2.5 per gram; 71 per ounce.

Claims of Manufacturer.—A rye bread of good quality.

MEAD'S FLORENA
(Partially Dextrinized Wheat Flour)

Manufacturer.—Mead Johnson and Company, Evansville, Ind.

Description.—Partially cooked and moderately baked patent wheat flour.

Manufacture.—Patent wheat flour in cotton bags is immersed in boiling water; a gelatinous surface layer is formed which prevents permeation of the water through the flour. The interior flour in a fairly dry condition is cooked for three hours. The bags are removed from the water and baked at a low temperature for five hours. The partial cooking and moderate baking rupture the starch granules and partially dextrinize the starch, thereby rendering the carbohydrate content more readily digestible.

During the baking, the gelatinous surface coating is changed into a hard crust. The bag and crust are removed and discarded. The inner portion of caked dried flour is ground to a fine powder of light tan color. The powder is again heated to reduce the moisture content and is packed in tin containers.

Analysis (submitted by manufacturer).—

	per cent
Moisture	4.5
Ash	0.5
Fat	1.0
Protein (N × 5.7)	9.2
Crude fiber	0.3
Dextrins (alcohol precipitation method)	6.0
Carbohydrates other than crude fiber (by difference)	84.5

Calories.—3.8 per gram; 108 per ounce.

Claims of Manufacturer.—A partially dextrinized wheat flour for use in infant feeding. Especially indicated (1) as a routine cereal diluent, (2) in cases of sugar intolerance, (3) as a base for "butter-flour mixtures," and (4) for high starch feedings.

GOLDEN KEY EVAPORATED MILK

Manufacturer.—Pet Milk Company, St. Louis.

Distributor.—Golden Key Milk Products Corp., St. Louis.

Description.—This is the same product as Pet Evaporated Milk (THE JOURNAL, Nov. 15, 1930).

FRENCH LICK PURE TOMATO JUICE

Manufacturer.—Tomato Products Company, Paoli, Ind.

Description.—Canned or bottled tomato juice retaining in high degree the vitamin content of the raw juice; seasoned with salt.

Manufacture.—Tomatoes are placed in a tank of water to loosen field dirt, are thoroughly washed by high pressure water sprays and are inspected on sorting tables; sound ripe tomatoes, trimmed of green portions if necessary, are selected for the tomato juice and transferred to the pressing apparatus, a cylindric screen with paddles, which rub the fruit against the screen. Live steam surrounds the apparatus and prevents the inclusion of air. The juice from the first screen is passed through a much finer screen to reduce the size of the particles and eliminate any coarse fibrous material. The juice is drawn through a continuous deaerating apparatus by means of reduced pressure in which it is sprayed into a "high vacuum" chamber, thus eliminating most of the dissolved or incorporated air. It is transferred to storage tanks through the bottom to avoid splashing and inclusion of air. A small amount of salt is added, and each batch is brought to a temperature of 71 C. as rapidly as possible. It is filled into bottles or cans, hermetically sealed, processed in hot water (No. 1 tins for twenty minutes at 93 C.), and immediately cooled.

Analysis (submitted by manufacturer).—

	per cent
Moisture	94.4
Total solids	5.6
Ash	0.7
Salt	0.3
Fat	0.0
Protein (N × 6.25)	1.2
Crude fiber	0.4
Carbohydrates other than crude fiber (by difference)	3.3

Calories.—0.2 per gram; 6 per ounce.

Vitamins.—The use of mature tomatoes, the careful factory control, the continuous method of manufacture, the exposure of the fruit juice to an atmosphere of steam only in the factory equipment, and the withdrawal in the "vacuum" treatment of air naturally occurring in the juice assure maximum retention of the natural vitamin content.

Claims of Manufacturer.—This tomato juice is a good source of vitamins A and B and an excellent source of vitamin C. It is recommended for general table use and as an accessory vitamin C food for infant feeding.

N. J. C. BRAND PANCAKE SYRUP
(85 Per Cent Corn Syrup, 15 Per Cent Refiners' Syrup)

Packer.—D. B. Scully Syrup Company, Chicago.

Distributor.—Northern Jobbing Company, Chicago and St. Paul.

Description.—A table syrup; a corn syrup flavored with refiners' syrup.

Manufacture, Analysis, Calories, Claims of Manufacturer.—See these sections for Banner Blue Corn Syrup with Cane Flavor (THE JOURNAL, March 5, 1932, p. 817).

HIRES ROOT BEER
(Concentrated Extract and Flavoring for Preparation of "Root Beer")

Manufacturer.—Charles E. Hires Company, Philadelphia.

Description.—A water solution or suspension of caramel and aqueous extracts of sassafras, sarsaparilla, licorice and ginger roots, juniper berries, dog grass, birch bark, hops, spikenard and pipsissewa herbs, vanilla beans and wintergreen and deer tongue leaves; for the preparation of "root beer" and fountain syrup beverages.

Manufacture.—The raw materials from various countries are ground in a root mill and extracted with a solution of water and alcohol. The alcohol is distilled off; the resulting aqueous extract is diluted with water to precipitate out some of the gums and resinous matter that would interfere with the preparation of a clear beverage. Caramel is added and the final mixture packed in containers.

Analysis (submitted by manufacturer).—

	per cent
Total solids	30.9
Ash	0.7
Nitrogen	0.1
Volatile oils	0.9
Sucrose	0.0
Reducing sugars, before inversion as dextrose	5.9
Reducing sugars, after inversion as dextrose	5.9
Non-sugar solids (caramel and organic plant extractives)	24.3
Alcohol	absent
Alkaloids	absent
Saponin	absent
Coal tar color	absent

Claims of Manufacturer.—A concentrated extract for the preparation of the table beverage "root beer."

HUMMER HIGHEST PATENT FLOUR
MENU HIGHEST PATENT FLOUR

Manufacturer.—Slater Mill & Elevator Company, Slater, Mo.

Description.—An "all purpose" short patent flour prepared from soft red wheat; bleached.

Manufacture.—Selected soft red wheat is cleaned, scoured, tempered and milled by essentially the same procedures as described in THE JOURNAL, June 18, 1932, page 2210. Chosen flour streams are blended, bleached with one-eighth ounce mix of benzoyl peroxide and calcium phosphate and one-fourth ounce of chlorine per barrel, and automatically packed in cotton and paper sacks.

Analysis (submitted by manufacturer).—

	per cent
Moisture	10.4
Ash	0.33
Fat (ether extraction method)	0.8
Protein (N × 5.7)	9.5
Crude fiber	0.5
Carbohydrates other than crude fiber (by difference)	78.5

Calories.—3.6 per gram; 102 per ounce.

Claims of Manufacturer.—An "all purpose" short patent flour for general baking uses.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, AUGUST 13, 1932

TEETH AND THE DIET

Within the last few years, considerable experimental data have accumulated showing that dental caries can be prevented or controlled by eating the proper foods. Among the more extensive reports may be mentioned [1] those of Bunting and his collaborators at Ann Arbor, Mellanby in England, Boyd, Drain and Nelson in Iowa City, and Hanke in Chicago. Taken collectively, these experiments demonstrate that dental caries may be considered largely as a dietary deficiency disease, a statistical fact of peculiar significance because of the amenability of this class of disorders to treatment. More striking, perhaps, is the insinuation that the complacent attitude of many persons relative to the supposed adequacy of the "average" American diet may be wholly unfounded. In a brief report of the incidence of caries in 1,192 children in public schools and orphanages in Michigan, tooth decay has been found by Bunting, Jay and Hard [2] in from 80 to 99 per cent of the children in the various groups that were studied. Active caries was noted in from 72 to 90 per cent of the public school children examined again at the end of a year, the number of teeth affected averaging from three to four for each child. There is reason to believe that the status of the teeth in Michigan children is not unique but could be duplicated in most other communities in this country. From the standpoint of the dietary requirements for good tooth formation and preservation, it would seem that the food we eat may not be wisely selected.

Although the importance of nutrition in dental and oral hygiene has been established, a recent commentator [1] has pointed out the wide existing differences of opinion regarding the particular dietary principle or group of factors responsible for the beneficial results. Some investigators have emphasized the rôle of vitamin C, pointing to the response of the teeth and gums in experimental scurvy. Others, reasoning that the metabolism of the teeth, like that of the bones, is governed by vitamin D, consider the antirachitic factor as the responsible agent. There is experimental evidence to support each assumption. Hess and Abramson,[3] however, have pointed out that poor teeth are prevalent in geographic situations where the diet is such that it precludes the possibility of deficient intakes of vitamins C or D.

Other hypotheses have sought to correlate bad teeth with the consumption of excessive amounts of sugar, with the ingestion of foods that have a potentially acid ash, and with various phenomena not directly dependent on the diet. Klein and McCollum [4] suggest that the ratio of dietary calcium to phosphorus is important, caries in rats occurring when there is a relative deficiency of phosphorus. Their results promise to explain some of the anomalies now present in the literature.

To formulate actual menus with something more than rule of thumb as a guide or to provide substitute foods when certain recommended articles are economically, geographically, seasonally or otherwise unobtainable will require a knowledge of the chemical ingredients of the diet that are necessary to insure good teeth. Such specific information has not as yet been acquired. Adequately controlled tests on human subjects cannot be done readily, and the interpretation of the work accomplished at present is difficult. Recourse to animal feeding experiments, a method employed with signal success in the elucidation of nearly all the dietary deficiency diseases so far investigated, is beset with unusual difficulties when applied to the study of the effect of diet on the teeth. As is well known, the prominent incisors of rodents grow from persistent pulps, and other teeth likewise may not be precisely analogous to either the deciduous or the permanent teeth of man. In addition to the structural differences there are a number of metabolic variations between species that limit experimental procedure. The rat thrives on diets devoid of vitamin C, and the guinea-pig, although susceptible to scurvy, is resistant to a deficiency of the antirachitic factor. Because of such handicaps, extreme caution must be applied before experimental results with animals can be interpreted in terms of human experience.

The results of studies of children, however, are at least unanimous in showing that efforts to provide an improved diet are in the main rewarded with increased resistance to tooth decay. This in itself is cause for gratification and should be an incentive to further study. Whether the prophylactic substance is one of the vitamins or some other factor, either known or as yet unrecognized, or even a combination of these in optimal amounts, must await future research.

1. Kesel, R. G.: What Do We Know About Dental Caries? A Critical Review of Recent Investigations, J. Am. Dent. A. **19**: 903 (June) 1932.
2. Bunting, R. W.; Jay, P., and Hard, D. G.: Observations in the Examination of the Mouths of 1,192 Children in Public Schools and Institutions, J. Dent. Res. **12**: 444 (June) 1932.
3. Hess, A. F., and Abramson, H.: The Etiology of Dental Caries, Dental Cosmos **73**: 849 (Sept.) 1931.
4. Klein, Henry, and McCollum, E. V.: A Preliminary Note on the Significance of the Phosphorus Intake in the Diet and Blood Phosphorus Concentration, in the Experimental Production of Caries-Immunity and Caries-Susceptibility, Science **74**: 662 (Dec. 25) 1931.

THE RELATIVE EFFICIENCY OF VITAMIN D PREPARATIONS IN DIFFERENT SPECIES

The discovery of the antirachitic potency of viosterol (irradiated ergosterol) created the hope that the strength of each of the many specifics for the treatment of rickets could be simply expressed in terms of a pure chemical substance. As is well known, the question of the proper dosage of viosterol led to the present knowledge of the exceedingly small amounts effective in the prevention or cure of rickets, and the hypercalcemia, pathologic calcification of the blood vessels and soft tissues, and other symptoms constituting the picture of hypervitaminosis due to enormous overdosage of this substance.[1] But the variations in potency of different preparations, coupled with the previous lack of information regarding the chemical structure of vitamin D, led in this country and elsewhere to the abandonment of gravimetric units and the substitution of direct biologic assay in which the strength of each preparation is expressed in terms of rat units per gram. Clinical experience soon revealed that various products of equivalent antirachitic potency, as judged by the rat test, possessed markedly different values for the treatment of infants. Some time ago, Hess[2] reported that a viosterol preparation, equivalent to approximately ten teaspoonfuls of cod liver oil, did not suffice to prevent typical roentgenologic signs of rickets in children. While the infant requires only twenty times as much cod liver oil as the rat, on the basis of equal weights, about sixty times as much viosterol is necessary. There is some evidence indicating that irradiated milk, or milk from cows fed irradiated yeast, is somewhat more efficient in the child than in the rat, when cod liver oil is the basis of comparison. To protect the average child from rickets, Hess and his collaborators find that about one liter of suitably activated milk, 15 cc. of standard cod liver oil, or ten drops of viosterol is sufficient. In terms of rat units these quantities are respectively 160, 200 and 830; that is, for each rat unit in the form of activated milk, 1.25 units as cod liver oil or 5.2 units as viosterol is required. These variations are accentuated when, instead of the infant, the response of the fowl is studied.

Such differences in effectiveness of the antirachitic factor in various species may be due to inherent difficulties in the biologic method of assay, to the widely differing types of food ingested by various species, to altered utilization of the vitamins because of possible variations in absorption, or, perhaps, to variations in the pathogenesis of rickets in different species. Regardless of the causes, these differences can readily be compensated for by altering the dosage in accordance with experimental facts. The differences in pharmacologic activity, therefore, should not be construed as evidence purporting to discount the value of viosterol.

Confirming and amplifying previous reports, the recent experiments of Steenbock, Kletzien and Halpin,[3] on the relative antirachitic potency of various vitamin D preparations for chickens, offer a new interpretation for these phenomena. When 1 per cent of cod liver oil, of standard strength, was incorporated in a rachitogenic diet, rickets was prevented. In comparison, protection was also afforded by from 7.5 to 60 times as many rat units in the form of irradiated yeast, and by 40 to 120 times, as irradiated ergosterol. Burbot liver oil, however, had the same value as cod liver oil in both rats and chickens. Further experiments were performed to test the hypothesis that some substance in fish liver oils might increase the efficiency with which vitamin D functions. Excessive amounts of irradiated ergosterol, whether dissolved in cod liver oil or corn oil, produced about the same degree of hypervitaminosis; hence the toxic effects of the antirachitic factor were not affected by the nature of the solvent. Therapeutic doses gave similar results, although the amount of cod liver oil in which the ergosterol could be dissolved was necessarily limited. The liver oil, fortified so that 0.1 or 0.05 per cent of the diet had the equivalent in rat units of 1 per cent cod liver oil, produced no increased deposition of bone ash above that observed in rachitic birds. The Wisconsin investigators[3] therefore conclude that the vitamin D produced by ordinary irradiation of ergosterol with a quartz mercury lamp is a different substance from that found in cod liver oil. It will be recalled, in this connection, that it was observed[4] in 1929 that provitamin D activity is not necessarily limited to ergosterol but may be a general property in varying degrees of different sterols.

In view of the studies of the relative values of irradiated products as compared with cod liver oil in different species, it would be interesting to know the efficiency of direct irradiation in the same animals. Although the presence of a skin protected by fur or feathers, as well as other considerations, offers experimental difficulties to the securing of quantitative data, it is known that such therapy is effective in all species. Pediatricians on more than one occasion have noted the effectiveness of direct irradiation of infants as contrasted with the occasional appearance of craniotabes and other signs of mild rickets in infants supposedly protected by adequate doses of cod liver oil or viosterol. So striking are these and other discrepancies that some clinicians go so far as to consider the antirachitic factor as something distinct from a vitamin or similar food constituent. Further study of the problem along the lines suggested by the concept of multiple vitamin D

1. These data are discussed in detail in the paper of Clouse, Ruth C.: Vitamin D, J. A. M. A. **99**: 215 (July 16), 301 (July 23) 1932.

2. A recent discussion of this subject is presented in Growth and Development of the Child: Part III, Nutrition (Report of the Committee on Growth and Development, White House Conference on Child Health and Protection), Century Company, New York, 1932, Vitamin D, pp. 157-176.

3. Steenbock, Harry; Kletzien, S. W. F., and Halpin, J. G.: The Reaction of the Chicken to Irradiated Ergosterol and Irradiated Yeast as Contrasted with the Natural Vitamin D of Fish Liver Oils, J. Biol. Chem. **97**: 249 (July) 1932.

4. Koch, F. C.; Koch, E. M., and Ragins, I. K.: Fractionation Studies on Provitamin D, J. Biol. Chem. **85**: 141 (Dec.) 1929.

factors, as propounded by Steenbock and his collaborators, may help to clarify and harmonize some of these discordant facts.

DOCTOR AND PATIENT

Modern medicine, strongly oriented toward the objective evidences of disease and toward their explanation on a physical basis, has abundantly justified its attitude by the advance it has made in the diagnosis and treatment of organic disease. This advance, however, together with the specialization it has developed, has tended toward a depersonalization of the practice of medicine and toward concentrating attention on the disease rather than on the patient. An instinctive resistance toward this tendency has been widely manifested and there is continued insistence that the practice of medicine involves a personal relationship between the physician and his patient that cannot be obviated. In the absence of a clearly stated rational basis for this point of view or a definite understanding of why this personal relationship might be of importance, the case has at times been weakened by a retreat to the grounds of sentiment.

In the meantime, psychiatry has been steadily advancing its understanding and treatment of the neuroses. With this progress there has been an increasing appreciation of the importance of the doctor-patient relationship in the prevention and treatment of the neuroses and of the neurotic concomitants of organic disease. It is now well established that in the relationship which exists whenever a patient reposes confidence in his physician there are large potentialities for good but that, in common with other potent agencies, the doctor's influence on his patient may result in harm if misused. The physician who carries his patient through serious physical illness without psychic damage, who practices a form of "preventive psychiatry" by which mental upsets are avoided, or who successfully helps his neurotic patients to understand themselves is making the best use of the relationship on which the psychiatrist depends for his expert psychotherapy. The physician, however, who provokes the onset of serious neuroses by ill considered observations or who leads his patient into an unprofessional relationship by the nature of his psychotherapy is productive of much harm to his patients.

Recognition of the importance of the personal relationship between physician and patient does not decry the accomplishments of modern medicine in its advance on the purely physical elements of disease. Modern medicine, which embraces illness of the mind as well as of the body, must recognize that roentgen diagnosis of gallstones and their surgical removal, for example, constitutes but one phase of the practice of medicine. Disease may be diagnosed and treated impersonally; the patient, however, is a human being, subject to mental as well as physical ills, and this human being must be the first object of consideration.

Thus an instinctive belief in the value of a time honored tradition, temporarily eclipsed by an impressive advance in another direction, now finds its justification on the basis of new advances. The practice of medicine, perhaps unbalanced for a time toward the physical side, will make its adjustments as it has in the past, will recognize the significance of mental factors and will consolidate the advances in both directions.

THE CENTENARY OF THE BRITISH MEDICAL ASSOCIATION

The annual session of the British Medical Association, held in London beginning July 21 and continuing through the week, was in celebration of its one hundredth anniversary. THE JOURNAL tenders to the organized British medical profession sincere and warm congratulations on having achieved this notable age and therewith an extraordinary record of service. Members of the British medical profession from far and near were present at the celebration. The American Medical Association was represented by three delegates: Dr. George H. Simmons, Dr. Henry O. Reik and Dr. Emmet Horgan.

In addition to the usual features of an annual session, a pilgrimage to Worcester was included for the unveiling of two monuments to Sir Charles Hastings, who founded the association in 1832. Lord Dawson of Penn, incoming president, delivered an address on "One Hundred Years and After," and Professor Julian Huxley gave a popular lecture on "The Biology of Human Nature." The program of the annual session included numerous receptions and entertainments, banquets, dances and even officially listed "cocktail" parties.

The founder of the British Medical Association, Sir Charles Hastings, died, July 30, 1866. He was distinguished as a medical editor and a leading practitioner as well as an organizer. In his inaugural address he outlined, as the purposes of the new body, addition to medical knowledge, amelioration of conditions of medical practice, and improvement of the conditions of medical practitioners with the state and the public. The British Medical Association has ever been active in these three purposes. It has achieved a membership second only to that of the American Medical Association among organized medical bodies. It publishes a competent weekly journal as well as two monthly magazines in medical specialties. The magnificent headquarters-office includes a great assembly hall, an excellent library, and exceptional facilities for carrying on the work of the association. It cooperates actively with the government, with the Medical Research Council and with every important medical endeavor in the British empire. Its record reveals, as does that of the

American Medical Association, the great value to physicians of a well supported and strong organization. Again, on this one hundredth milestone, our felicitations!

Current Comment

HUMAN-CHIMPANZEE RELATIONSHIP

Rabbits injected with either human or chimpanzee blood develop antihuman, antianthropoid hemagglutinins. With either the antihuman or the antichimpanzee rabbit serum, less difference is demonstrable between human and chimpanzee erythrocytes than between different samples of human blood. This apparent human-chimpanzee hemic identity has been quoted in support of conventional evolutionary theory. That such serologic data give an exaggerated picture of the closeness of this relationship, however, is evident from the serologic studies reported by Drs. Landsteiner and Levine[1] of the Rockefeller Institute. These investigators injected chimpanzees with human corpuscles and human serum proteins. They obtained specific antihuman agglutinins and antihuman precipitins giving no demonstrable cross-reactions with chimpanzee erythrocytes and chimpanzee serum proteins. In spite of the apparent identity of humoral responses in rabbits, chimpanzee proteins and human proteins are far from being antigenically interchangeable.

HEXURONIC ACID AND CELLULAR RESPIRATION

Several years ago, Szent-Györgyi isolated from a variety of tissues of both plants and animals a crystalline isomer of glycuronic acid that he termed "hexuronic acid." The product is an exceptionally potent reducing substance and is closely related to the familiar simple carbohydrates. In the reduction reactions, hexuronic acid itself undergoes an oxidation that is reversible. Szent-Györgyi regards the newly investigated carbohydrate derivative as the most potently reactive substance of its class that has been isolated in a free form from biologic materials. The cabbage leaf, from which hexuronic acid has been prepared in considerable quantity, contains a characteristic enzyme, hexoxidase, which in the presence of oxygen oxidizes hexuronic acid to a reversible oxidation product. This has given rise to the belief that hexuronic acid may play an important part in the respiration of the tissues where it is found.[1] As a hydrogen carrier, it connects the system in which the molecular oxygen enters into reaction with the system that supplies hydrogen and is involved in the oxidation of foodstuffs. Hexuronic acid had previously been discovered by Szent-Györgyi[2] as a constituent of the suprarenal glands. On this account he ventured to connect the product with the possible function of the glands in biologic oxidations in the body. The latest contribution of the same investigator[3] involves the hypothesis that hexuronic acid and vitamin C—the antiscorbutic vitamin—are identical. Szent-Györgyi has just reported that 1 mg. of hexuronic acid administered daily to the conventional susceptible laboratory animal, the guinea-pig, receiving a so-called scurvy-producing ration, serves fully to protect it against the disease. Although hexuronic acid will not keep suprarenalectomized animals alive, it is reported[3] that patients suffering from Addison's disease with pigmentation plainly seemed to lose the pigment when treated with hexuronic acid, although their condition was not otherwise improved. We are thus faced with new observations pregnant with interest for the student of cellular oxidation and endocrine function. It is too early to accept the immediately suggested hypotheses as more than leads in the direction of promising research. The recent confusion caused by various alleged discoveries of the nature of vitamin C serve as a warning against what a recent writer has described as the fantastic statements and unwarranted conclusions to which research enthusiasts are all too often inclined. An hypothesis remains valuable in science only so long as it is not allowed to acquire prematurely the dignity of demonstrated truth.

TULAREMIA IN SWEDEN

More and more it is becoming apparent that tularemia is probably world wide in its distribution. The disease independently described by Ohara, in Japan, in 1925, is now known to be tularemia.[1] Until 1928, when more than a thousand cases were encountered in Soviet Russia,[2] tularemia was unknown in Europe, except for three accidental infections among laboratory workers in London in 1922.[3] In 1930, Thjøtta[4] described the first three cases of tularemia to be recognized as such in Norway. More recently, Thjøtta[5] has reported the recognition of some fifty cases in Norway. Thjøtta[6] believes that rodents other than wild rabbits, such as lemmings and field mice, are infected with tularemia. In Norway, the enormous groups of lemmings in the periodic migrations are regarded as a natural concentration of the tularemia virus. Years of great lemming wanderings are followed by unusually high mortality in the rabbit population of the same areas. More recently, Granström[7] of the eye clinic of Serafim Hospital, Stockholm, has reported the recognition of the first cases of tularemia in Sweden. A husband and wife cooperated in pre-

1. Landsteiner, Karl, and Levine, Philip: J. Immunol. **22**: 39 (June) 1932.

1. Szent-Györgyi, Albert: On the Function of Hexuronic Acid in the Respiration of the Cabbage Leaf, J. Biol. Chem. **90**: 385 (Jan.) 1931.
2. Szent-Györgyi, Albert: Observations on the Functions of Peroxidase Systems and the Chemistry of the Adrenal Cortex: Description of a New Carbohydrate Derivative, Biochem. J. **22**: 1387, 1928.
3. Szent-Györgyi, Albert: Vitamin C, Epinephrine and the Suprarenal, Deutsche med. Wchnschr., May 27, 1932, p. 852.

1. Francis, Edward, and Moore, Dunlop: Identity of Ohara's Disease and Tularemia, J. A. M. A. **86**: 1329 (May 1) 1926.
2. Tularemia in Russia, Current Comment, J. A. M. A. **93**: 696 (Aug. 31) 1929. Simpson, W. M.: Tularemia, New York, Paul B. Hoeber, Inc., 1929.
3. Ledingham, J. C. G., and Fraser, F. R.: Tularemia in Man from Laboratory Infection, Quart. J. Med. **17**: 365 (July) 1924.
4. Tularemia in Norway, Current Comment, J. A. M. A. **94**: 995 (March 29) 1930. Thjøtta, T.: Three Cases of Tularemia, a Disease Hitherto Not Diagnosed in Norway, Avhandl. Videnskaps-Akad. i. Oslo, I. Mat-Naturv., Klasse 1930, number 1, p. 1.
5. Thjøtta, T.: Tularemia in Norway, J. Infect. Dis. **49**: 99-103 (Aug.) 1931.
6. Thjøtta, T.: Occurrence of Tularemia in Norway: Cases of Origin Other than Through Infection from Rabbits, Norsk mag. f. Lægevidensk. **92**: 32 (Jan.) 1931.
7. Granström, K. O.: Tularemia Oculoglandularis, Acta ophth. **10**, 1932, parts 1-2.

paring a wild rabbit for cooking. The husband developed the oculoglandular form of the disease; the wife became ill at approximately the same time with ulceroglandular tularemia. The specific agglutination tests were strongly positive in both instances. Two other cases of ulceroglandular tularemia have been encountered at the same clinic. Granström directs particular attention to the close similarity of the symptoms and signs of Parinaud's disease and oculoglandular tularemia. He states that many cases which had been diagnosed as Parinaud's disease were later proved to be cases of "conjunctivitis tularensis."

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts on Monday and Wednesday from 10:45 to 10:50 a. m. over Station WBBM (770 kilocycles, or 389.4 meters). The Columbia chain program has been discontinued for the present.

The subjects for the week are as follows:

August 15. Bootleg Milk.
August 17. School Days Are Here Again.

There is also a fifteen minute talk sponsored by the Association on Saturday morning from 10:45 to 11 over Station WBBM.

The subject for the week is as follows:

August 20. Vacation Health.

This schedule is based on Chicago Daylight Saving Time, one hour faster than Central Standard Time.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

Society News.—Officers elected at the recent annual session of the Arizona Public Health Association are: president, Dr. Alvy N. Crain, director, Maricopa County health unit; vice presidents, W. J. Jamieson, city engineer of Phoenix, and Dr. Raphael B. Durfee, county health officer, Bisbee, and secretary, Jane H. Rider, director, state laboratory, Tucson. Dr. Charles E. Irvin, Miami, presided as toastmaster at the dinner, and Dr. Fred T. Foard, U. S. Public Health Service, spoke.

CALIFORNIA

Society News.—The San Francisco County Medical Society was addressed, August 9, among others, by Drs. Norman N. Epstein and Sarkis B. Paul, San Francisco, "Treatment of Syphilis by Means of Hyperpyrexia Produced by Diathermy."——Dr. Camille Kereszturi, New York, gave an illustrated address on "The Use of B C G Vaccine" before the Trudeau Society, Los Angeles, August 2.

Clams Now Poisonous.—Recent laboratory examinations disclosed that all clams, with the exception of mudclams, as well as mussels from certain sections along the coast of California, are now poisonous. The state department of health has therefore established a quarantine, prohibiting the sale or offering for sale of all clams, with the exception of mudclams, in the coastal area from Monterey County to the Klamath River in Del Norte County, excluding San Francisco Bay. This quarantine will be in effect until September 30. Mussels and clams in the San Francisco Bay waters do not show signs of toxicity, as do shellfish in ocean waters. However, the bulletin of the state board reports, this action does not affect a permanent quarantine on clams in San Francisco Bay, which was established, May 28, because of sewage pollution of the bay waters. The order also includes mudclams.

COLORADO

Society News.—Dr. Harold B. Henderson, Denver, addressed the Larimer County Medical Society, July 6, on "Practical Points in Gynecology."——At the meeting of the Otero County Medical Society in Rocky Ford, July 14, Dr. Elmer L. Timmons, Colorado Springs, talked on pediatrics, and Dr. William P. McCrossin, Jr., Colorado Springs, cervicitis, including etiology, diagnosis and treatment.

State Medical Meeting at Estes Park.—The sixty-second annual session of the Colorado State Medical Society will be held at the Stanley Hotel, Estes Park, September 8-10, under the presidency of Dr. Edward Delehanty, Denver. Guest speakers included on the scientific program are Drs. Theodore H. Weisenburg, professor of neurology, Graduate School of Medicine, University of Pennsylvania, "Recent Advances in the Commoner Nervous Diseases"; Edward H. Skinner, Kansas City, "Relation of Roentgenology to Other Fields of Medical Practice"; Isaac A. Abt, professor of pediatrics, Northwestern University Medical School, Chicago, "Pneumonia in Childhood," and Frank D. Dickson, Kansas City, "Low Back Injuries with Particular Reference to the Part Played by Congenital Abnormalities." Among other Colorado physicians participating in the program will be Drs. Maurice Rees, dean, University of Colorado School of Medicine, Denver, "Recent Progress in Medicine"; Carl W. Maynard, Pueblo, "Cholecystectomy and Its Surgical Pathology"; Clyde T. Knuckey, Lamar, "Obstetrics from the Standpoint of the General Practitioner," and Marcus O. Shivers, Colorado Springs, "Means and Methods of Goiter Prophylaxis." Dr. Edward H. Cary, Dallas, Texas, President, American Medical Association, will deliver an address at the annual banquet. In addition to the golf tournament, a program of entertainment has been arranged.

GEORGIA

Society News.—Dr. John L. Elliott, Savannah, addressed the Georgia Medical Society, June 14, on "Hyperemesis Gravidarum."——The Ocmulgee Medical Society was addressed at Hawkinsville, June 17, by Drs. Wallace L. Bazemore and Charles H. Richardson, Jr., Macon, on transurethral prostatic resection and acute conditions in the abdomen, respectively.——At a meeting of the Randolph County Medical Society in Cuthbert, July 7, Dr. Clarence R. Bennett, Eufaula, Ala., spoke on "Aortitis and Aortic Insufficiency."——The Thomas County Medical Society was addressed in Thomasville, June 22, by Drs. Simeon E. Sanchez, Barwick, on "Anemia in Pregnancy," and Charles H. Watt, Thomasville, "Acute Osteomyelitis."——The Sixth District Medical Society was addressed, June 29, at Indian Springs, among others, by Drs. Bernard McH. Cline, Atlanta, on "Peroral Endoscopy in Relation to General Medicine," and Ernest Corn, Macon, "Transurethral Resection of the Prostate."——Dr. Evert A. Bancker, Jr., Atlanta, read a paper on "Coronary Disease" before the Fulton County Medical Society, August 4. Dr. Bernard L. Shackleford gave a clinical talk on "Reflex Conditions."

ILLINOIS

Health Exhibit at State Fair.—Plans have been completed by the state department of public health for displaying at the Illinois State Fair in Springfield, August 20-27, the most extensive and comprehensive health and sanitary exhibit ever presented in connection with the event, the *Illinois Health Messenger* reports. The displays relate to milk, water, diet, laboratory procedures, insect pests, personal hygiene and various specific diseases, such as smallpox, typhoid, cancer, heart disease, pneumonia, tuberculosis, diphtheria, scarlet fever and rabies. A baby conference, which is undertaken as a demonstration, it was stated, will be held in connection with the exhibit. Children from 6 months to 10 years of age are eligible for registration and examination.

One Case of Diphtheria in Twelve Years.—At the Mooseheart School, Mooseheart, which has an enrolment of about 1,500, there has occurred only one case of diphtheria since 1920, and not a case of scarlet fever since 1926, among the tested and immunized students. There have been no cases of diphtheria at the Soldiers Orphans Home, Normal, which has a constant child population of more than 650, and none of scarlet fever since October of 1929. One case was reported in that year. Immunization work started at the home in 1925,

and at Mooseheart in 1926. All children present at that time were given the Dick test and treated with the Dick scarlet fever toxin. Since that time all children admitted to the orphans' home have been tested at the time of admission and the reactors immunized. At Mooseheart the testing is done each six months, those previously immunized being retested along with those newly admitted. Drs. Ralph P. Peairs and John D. Nichols are the medical directors, respectively, of the home and of Mooseheart School.

INDIANA

Personal.—Dr. Frank V. Newcomer has been appointed a member of the city board of health to succeed the late Dr. Edward M. Boggess, Elwood. Dr. Newcomer is president of the Elwood Medical Society.——Dr. Thomas J. McKean, Montpelier, was appointed health officer of Montpelier recently to succeed the late Dr. Marion A. Emshwiller.——Dr. Leonard A. Ensminger has been appointed chairman of the department of orthopedic surgery of Indiana University School of Medicine, Indianapolis, and Dr. Raymond C. Beeler has been appointed chairman of the division of radiology, department of surgery. ——Dr. Thurman B. Rice, Indianapolis, addressed the Parke-Vermillion Counties Medical Society, June 22, on "Newer Concepts of Bacteriology."

IOWA

Society News.—The Iowa and Illinois Central Medical Association, at its annual meeting in Davenport, July 14, elected the following officers: Drs. Hugh A. Beam, Moline, president; Harry H. Lamb, Davenport, vice president; Karl W. Wahlberg, Moline, secretary, and John H. Fowler, East Moline, treasurer. Dr. E. Starr Judd, Rochester, Minn., formerly President, American Medical Association, spoke on "Surgery of the Biliary Tract." Other speakers were Drs. John F. Ritter, Maquoketa, on "Nascent Endocrine Therapy"; John H. Peck, Des Moines, "Childhood Tuberculosis," and Fred M. Smith, Iowa City, "Discussion of Certain Aspects in the Treatment of Cardiac Failure." Dr. George Braunlich, Davenport, retiring president, gave his official address.

KENTUCKY

Health Material Available in Libraries.—The state board of health, through its social hygiene division, is asking the cooperation of free public libraries in Kentucky in making available to parents, teachers and others interested in the proper training of children, authoritative material on training for parenthood, character development and child guidance. It is planned to donate about ten new books, from a selected list, to any public library that will definitely establish a social hygiene section and assist in getting these books circulated. The social hygiene division, which is known as the Social Hygiene Association of Kentucky, hopes in this way to form a nucleus which will be augmented from time to time by the library boards as public demand warrants. Included in this offer is a complete set of social hygiene pamphlets for use in the reading rooms. It was stated that fourteen of the seventy public libraries in the state are now so equipped.

MAINE

Society News.—The Hancock County Medical Society was addressed at Bar Harbor, July 20, by Drs. Edward H. Risley, Waterville, "Treatment of Head Injuries," and Francis T. Hunter, Boston, "Modern Treatment of Diseases of the Blood." ——At a meeting of the Somerset County Medical Society at Lake Wesserunsett, June 30, Drs. Elmer D. Merrill, Dover-Foxcroft, and Warren E. Kershner, Bath, president and president-elect, respectively, of the Maine Medical Association, spoke. Dr. Merrill discussed cults from a legislative standpoint, and Dr. Kershner, medical organization. Dr. George R. R. Hertzberg, Stamford, Conn., read a paper on the use of camphor oil as an antiseptic in first aid dressings and in the treatment of burns, ulcers, bed sores and like conditions.

MARYLAND

In Memoriam.—The *Bulletin* of the University of Maryland School of Medicine dedicated its July issue to the memory of Dr. C. Hampson Jones, late professor of hygiene and public health at the school, and commissioner of health of Baltimore.

Increase in Venereal Disease.—An increase of more than 7,000 treatments for venereal disease was noted during the first six months of this year in Baltimore dispensaries, as compared with the number given during the corresponding period of last year, the city department of communicable disease reports. During the month of June, 157 more patients were reported than for the same month last year. In one dispensary, 217 women were treated on one clinic night and 150 in the afternoon of the same day. The current economic condition may be charged with this increase, it was said, because patients in better times would probably go to private physicians for treatment. These dispensaries in the city are manned by six Negro and four white physicians. It is expected that at the present rate of increase it will be necessary for the city clinics to give more than 80,000 treatments by the end of this year, and should conditions not improve these figures will increase to more than 110,000 by the end of 1933. A survey made by the public health service in 1931 showed that more than 10,000 active cases of gonorrhea and syphilis are constantly under treatment in Baltimore, with more than 10,000 new infections each year. The rate among the Negro population is about four times as high as among the white population.

MINNESOTA

Short Courses on Tuberculosis.—July 17 marked the opening this year of the short courses on tuberculosis given throughout the state, through the cooperation of the sanatoriums and the Minnesota Public Health Association. The first course was held at the Otter Tail County Sanatorium at Battle Lake. The second one will be held, August 31, at Buena Vista Sanatorium, Wabasha. Speakers on the program will be Drs. Jay Arthur Myers, Minneapolis; Francis F. Callahan, Pokegama; Walter H. Ude, Minneapolis; Charles N. Hensel, St. Paul; Russell H. Frost, Wabasha, and Edward A. Meyerding, St. Paul. Every physician will be given an opportunity to make examination and diagnosis of several patients under the direct supervision of one of the tuberculosis specialists. Enrolment is limited to twenty-five.

Society Holds Sixty-Fourth Annual Meeting.—Wabasha County Medical Society held its sixty-fourth annual meeting at Plainview, July 7. Dr. William B. Stryker, Plainview, was elected president; Dr. Rudolph C. Radabaugh, Hastings, vice president, and Dr. William F. Wilson, Lake City, secretary. The retiring president, Dr. William F. Wilson, Lake City, spoke on "Some Changes in Thirty-Eight Years"; Dr. George B. Eusterman, Rochester, Minn., "New Developments in the Diagnosis and Treatment of Gastric Cancer and Ulcer"; Dr. Radabaugh, "Osteomyelitis of Humerus Treated with Maggots"; Dr. David G. Gardiner, St. Paul, "Peroral Endoscopy," and Dr. Thomas Myers, St. Paul, "Simplified Infant Feeding." The next annual meeting will be held in Wabasha in July, 1933. A resolution was adopted at the recent meeting providing for reciprocal relations between the Winona and Wabasha county medical societies, and calling for one or more joint scientific and social meetings to be held during the year, alternately in each county.

MISSOURI

Society News.—Dr. George Leonard Harrington, Kansas City, addressed the Jasper County Medical Association in Joplin, June 7, on "Mental Health and Depression."——Dr. Eugene M. Lucke, health officer of Marion County, Hannibal, was elected president of the Missouri Public Health Association, June 10.

Appointments at St. Louis University.—Announcement has been made of the following appointments and promotions in St. Louis University School of Medicine, among others:

PROMOTIONS

Alrick B. Hertzman, Ph.D., associate professor of physiology.
Dr. Florent E. Franke, assistant professor of physiology.
Dr. Alver H. Kerper, assistant professor of anatomy.
Dr. John Anthony Brennan, instructor in internal medicine.
Dr. John J. Hammond, instructor in internal medicine.
Dr. Daniel L. Sexton, instructor in internal medicine.
Dr. Emanuel Sigoloff, instructor in internal medicine.
Dr. Neil S. Moore, instructor in urology.
Dr. George H. Koenig, instructor in urology.
Dr. Carl F. Vohs, instructor in orthopedic surgery.

APPOINTMENTS

Dr. John H. Hershey, assistant in anatomy.
Dr. Raymond O. Muether, assistant in internal medicine.
Dr. James H. Ready, assistant in internal medicine.
Dr. Carl J. Reis, assistant in internal medicine.
Dr. Jerome Diamond, assistant in pediatrics.
Dr. Howard L. Lange, assistant in pediatrics.
Dr. Samuel J. Freund, assistant in surgery.
Dr. Thomas E. McGurk, assistant in surgery.

Dr. Joseph Mülzer of the University of Heidelberg was designated to receive the Carl Barck fellowship in ophthalmology, established a year ago, newspapers state, when the University of Freiburg conferred a golden doctorate on

Dr. Barck in appreciation of his fifty years' service in ophthalmology. Dr. Mülzer will have special research duties in the new Firmin Desloge Hospital. Dr. Goronwy O. Broun was appointed director of the university hospitals.

NEBRASKA

Hospital News.—The Douglas County Hospital, Omaha, a new institution with 135 beds for tuberculosis and 85 for nervous and mental diseases, was dedicated, June 27. The five-story building was constructed at a cost of about $900,000.

Personal.—Dr. Otis Merriam Cope, associate professor of physiology and pharmacology in the University of Nebraska School of Medicine, Omaha, has resigned to become professor of physiologic chemistry at the New York Homeopathic Medical College.

Society News.—The first scientific meeting of the Southwest Nebraska Medical Society was held in McCook, June 9. Three Omaha physicians made addresses as follows: Charles A. Owens, Jr., on "Diagnosis of Prostatic Disease"; Arthur D. Dunn, "Relationship of Paranasal Sinusitis to Systemic Disease," and Herbert H. Davis, "Tumors of the Breast."——Dr. Ora S. Fowler, Denver, addressed the Scotts Bluff County Medical Society, Scottsbluff, June 16, on visceroptosis and nephropexy.——The Northeast Nebraska Five-County Medical Society joined the Madison Six-County society in its June meeting in Norfolk. Speakers were Drs. Bennie R. Farner, Norfolk, on "Accidental Tissue Transplantations"; Harry E. Harvey, Lincoln, "Recent Developments of Endocrinology as Related to Gynecology," and Arthur E. Hertzler, Halstead, Kan., clinical methods of diagnosis and treatment.——A Sixth Councilor District Medical Society was organized at Stromsburg, June 27, with Dr. Dexter D. King, York, as president.

NEW JERSEY

Trachoma in Orphanage.—Eighty-two cases of trachoma had been discovered in the state up to the middle of June in the course of an investigation begun after a number of cases were discovered in an orphanage in Mercer County in May. The average annual number of cases of trachoma in New Jersey in the last five years was only seventeen. The fact that the disease had probably existed in the orphanage for at least two years and that boys had been placed in families throughout the state added to the difficulty of the investigation, which has been carried on by the state and local boards of health and the state board of children's guardians.

Outbreak of Undulant Fever.—Twelve cases of undulant fever were traced to a single herd of cattle, from which milk was sold to nine communities during the summer and fall of 1931, according to an epidemiologic report in *Public Health News*. The dealer who sold the milk maintained a herd of high grade cows on his country estate, and raw milk was sold at higher prices than those charged by other dealers. Investigation revealed that this herd had been affected with contagious abortion at various times between June, 1926, and May, 1931, and that several reactors had been slaughtered. Eleven of the patients were infected through the use of raw milk or cream from this dairy, and the twelfth case occurred in a veterinarian employed for the infected herd of cattle. The dealer installed a pasteurizer at the time the investigation was begun, Oct. 28, 1931. When it was finally established that his product was the source of the cases investigated, the state board of health served an order on him prohibiting the sale of raw milk or cream produced or stored in his dairy until the herd was proved to be free from contagious abortion. Two other cases are included in the report, but it was established that these originated outside the communities in which they were diagnosed.

NEW YORK

Lake Keuka Medical Meeting.—The thirty-third annual meeting of the Lake Keuka Medical and Surgical Association was held at Lake Keuka Hotel, July 14-15. The program included the following speakers: Drs. Frederick S. Wetherell, Syracuse, "Spinal Anesthesia in Surgery"; Max M. Peet, Ann Arbor, "Head Injuries"; Foster Kennedy, New York, "Neuroses Following Accidents"; George B. Magrath, Boston, "Medical Science in the Service of the State with Special Reference to Investigation of Deaths"; Howard M. Clute, Boston, "Diagnosis and Management of Obstructive Jaundice"; Descum C. McKenney, Buffalo, "Blood in Stools of Colonic Origin"; William L. Wallace, Syracuse, "Avertin in Surgery." Dr. Harold O. Jones, Chicago, showed a sound film on "Repair of Second and Third Degree Lacerations of the Perineum and Rectocele." Dr. Frederick H. Flaherty, Syracuse, president-elect of the New York State Medical Society, made the opening address on medical organization.

New York City

Hospital Allowance for Care of Indigents.—The United Hospital Fund, representing fifty-six private hospitals in New York, has appealed to the Board of Estimate and Apportionment to increase the allowance for care of patients recognized as public charges from $3 to $4.50. It was pointed out that the amount allowed was about half the cost of their treatment and also that the number of such patients had doubled in the last five years. The statement declared that the hospitals would not be able to meet what promises to be a greater demand than ever during the coming winter unless early and substantial help came from the city. In 1931, it was said, forty-three general and special hospitals and branches gave 788,062 days of hospital care to indigent patients in addition to their service to free and part-free patients for whom the city paid nothing.

Outbreak of Wood Alcohol Poisoning.—Eighteen men died of wood alcohol poisoning in the lower East Side district between July 27 and 31, according to newspaper reports. Seven were found dead in parks or on the streets and the remainder died within an hour after being taken to Bellevue and Broad Street hospitals from various places from the Bowery to the Battery. Alexander O. Gettler, Ph.D., city toxicologist, and Dr. Harry Schwartz, assistant medical examiner, made the chemical analysis that determined the cause of death. First-hand information as to the source of the poison liquor could not be obtained, as all the victims who were still alive when found were unconscious, but Dr. Charles Norris, chief medical examiner, expressed the belief that it had all come from a common source. It was said that the last outbreak of the kind occurred in 1930, when thirty died during the month of June.

NORTH CAROLINA

Hospital News.—A new hospital, known as the Lyday Memorial Hospital, was opened, June 6, in Brevard.——The new $130,000 unit of the Randolph Hospital, Asheboro, was recently opened, it is reported. The cost was financed in part by the Duke Endowment.

Society News.—Dr. William A. Frontz, Baltimore, recently addressed the Guilford County Medical Society on "Malignant Disease of the Prostate and Bladder." Dr. Frontz addressed the Buncombe County Medical Society, June 20, on hematuria, with special reference to early diagnosis.——Drs. James W. Gibbon and Oscar L. Miller addressed the Mecklenburg County Medical Society, Charlotte, June 7, on "Surgery of the Large Intestine" and "Treatment of Tuberculous Hips in Children by Surgical Fusion," respectively.——Drs. Richard B. Davis and Charles A. Julian, both of Greensboro, were speakers before the Robeson County Medical Society, June 18, on "The Logical Incision for an Appendectomy" and "Nervous Indigestion," respectively.

PENNSYLVANIA

Society News.—The Fayette County Medical Society held a clinical meeting, August 4, at Uniontown, with Drs. Alexander M. Duff, Jr., Republic, and William A. McHugh, Jr., Uniontown, among others, as speakers, on "Public Health Aspects of Rabies" and "Neurofibromatosis of the Peritoneum," respectively.——Dr. Jonathan M. Wainwright, Scranton, was elected president of the Lehigh Valley Medical Association at the fifty-second annual session at Pocono Manor, July 21. Speakers at the meeting were Drs. William J. Schatz, Allentown, on "Evolution of the Present-Day Saline Solution"; Samuel B. English, Glen Gardner, N. J., "Fifty Years' Progress in Medicine," and Edward J. G. Beardsley, Philadelphia, "Rôle of Physical Examination in Diagnosis."

Philadelphia

Diphtheria Campaign.—Temporary clinics established for intensive immunization in the city's fifth annual campaign against diphtheria, June 6-24, treated 9,851 children. Each child that received three injections was furnished with a certificate stating the approximate date of the injections, and advising the parent to bring the child back at the end of six months to determine the effect of immunization. If the child is then found immune, he will be given a certificate stating this fact. The campaign was carried on in sixty-six public schools, eighteen parochial schools and ten health centers.

SOUTH DAKOTA

Society News.—Dr. Solon Marx White, Minneapolis, addressed the Sioux Falls District Medical Society, June 14, on heart disease in pregnancy.——Dr. Daniel S. Baughman addressed the Third District Medical Society at Madison, June 3, on "Tumors of the Testicle."——A $375,000 sanatorium for Indians with tuberculosis will be started at once at Fort Pierre, it is reported.

TEXAS

University News.—Dr. John O. McReynolds, Dallas, has presented to the University of Texas School of Medicine a scientific exhibit relating to the crystalline lens system in man and the lower animals. The collection assembled by Dr. McReynolds consists of photographs and mounted lenses of the various species of the animal kingdom, and 300 cataract lenses removed in the capsule, together with slides illustrating the pathologic processes and the embryology of lenses.

Society News.—Dr. Henry F. Carman, Dallas, among others, addressed the Tarrant County Medical Society, Fort Worth, June 7, on artificial pneumothorax.——Physicians of Jim Wells, Brooks and Duval counties organized a tricounty medical society, June 7, with Dr. John S. Strickland, Alice, as president and Dr. George G. Wyche, Alice, secretary.——Among speakers at the semiannual meeting of the North Texas District Medical Society at Bonham, June 14-15, were Drs. Alfred I. Folsom, Dallas, on "Prostatic Resection"; Lois Weir Smith, Sherman, "Fermentation Diarrhea in Infancy"; Everett C. Fox, Dallas, "Precancerous Dermatoses," and Daniel B. Westerman, Cooper, "Peptic Ulcer of Stomach and Duodenum."——Dr. Charles P. Coogle of the U. S. Public Health Service, Longview, among others, addressed the Van Zandt County Medical Society, June 3, on malaria control.——A program of lectures on cancer was presented at Sherman, June 7, under the auspices of the Grayson County Medical Society, by Drs. Arthur C. Scott of Temple and John L. Goforth and Curtice Rosser, both of Dallas.

GENERAL

News of Epidemics.—Quarantine was suddenly imposed on a national guard encampment at Camp Perry, Ohio, July 10, when thirty cases of chickenpox were discovered among the 2,700 officers and enlisted men in training there.——Fourteen cases of scarlet fever in a residential section of Elizabeth, N. J., between June 13 and 18, were traced to the use of raw milk from a single dealer. Infection was believed to have come from two cases of the disease in the dealer's family. It was said that the dealer involved had been a strenuous objector to a proposed ordinance requiring pasteurization of milk; he had, however, arranged to pasteurize his supply after the outbreak of scarlet fever.——General vaccination against smallpox was ordered by the mayor of Niles Center, Ill., July 20, after several cases were discovered in the village.

Society News.—All the officers were reelected at the seventeenth annual convention of the Catholic Hospital Association of the United States and Canada held, June 21-24, at Villanova College, Villanova, Pa. The program included the following speakers: Dr. Edward H. Cary, Dallas, President, American Medical Association, in "Federal and State Hospital Legislation"; E. H. Lewinski-Corwin, Ph.D., New York, "Nomenclature of Diseases and Operations"; James B. Hagerty, D.D.S., "Dental Service in the Hospital in Relation to Medical Care"; Dr. Michael O. Cunningham, Deming, N. M., "Requirements for the Care of the Tuberculous Patient"; Mr. Homer F. Sanger, Chicago, "National Hospital Development," and Dr. James P. Dean, Madison, Wis., "Essential Factors of a Diagnostic Service." The meeting was conducted with the Rev. Alphonse M. Schwitalla, St. Louis, presiding.——The fourth annual meeting of the Aero Medical Association will be held in Cleveland, September 3-5, under the presidency of Dr. Ralph N. Greene, Jacksonville, Fla. The association is made up of medical examiners of the aeronautics branch of the U. S. Department of Commerce, and army and navy flight surgeons. Dr. William B. Smith, Hartford, Conn., is the secretary. Among speakers will be Major Eugene J. G. Reinartz, Medical Corps, U. S. Army, on "Neuropsychiatric Problems of a Flight Surgeon," and Herbert B. Wright, Cleveland, "Medical Supervision."

Traffic Deaths Rise to 30,000.—An increase was noted in the mortality from automobile accidents in 1931, as compared with the total for the year 1930. The U. S. Department of Commerce, in its provisional summary for 1931, announces that during the calendar year in the death registration area of continental United States, exclusive of Utah, there were 29,547 deaths from these accidents, not including collisions of automobiles with railroad trains and street cars. In 1930, in the same area, there were 28,950 deaths from this cause. The death rates were 24.9 and 24.5 for the respective years. In these two years, forty-seven states, the District of Columbia, and eight registration cities in the nonregistration state of Texas composed the area in continental United States, or 95.7 per cent of the total population. Considering the states by geographic divisions, the Pacific group had the highest death rate (34.6 per hundred thousand of population) in both years. Nevada, with a rate of 68.5, had the highest rate for states when considered separately. The rate for Nevada almost doubled, the rate in 1930 being 37.4. Mississippi had the lowest mortality rate (14). The city having the highest mortality rate from this cause was Camden (84). The total number of deaths within a city should not be taken as the measure of the automobile hazard, the department of commerce points out. The location of the city with reference to automobile traffic, the volume of traffic, hospital facilities and other factors should be considered. Camden is offered as an illustration of this statement. In 1931, 100 deaths attributed to automobiles occurred in Camden, but only 37 were due to accidents within the city limits. The remainder (63) were due to accidents outside.

Government Services

Course for Reserve Officers

A two weeks' course of medicomilitary training for Medical Department Reserve Officers has been arranged through the authorities of Western Reserve University and the hospitals of Cleveland, to be given, October 9-22. Mornings will be spent in hospitals and the Cleveland Clinic, which are collaborating with the school of medicine and the Pathological Institute of Western Reserve. Afternoon and evening hours will be devoted to medicomilitary subjects. Applications are being received by Dr. George W. Crile, commander of the Cleveland Inactive Duty Training Unit, Ninety-Third and Euclid Avenue, Cleveland. They will be forwarded to the corps area surgeon of the Fifth Corps Area. Those from officers outside the Fifth Corps Area should be forwarded through their respective corps area commanders. The course offered at Cleveland is the first to be given outside the Seventh Corps Area. Previous periods of study have been conducted at the Mayo Foundation, Rochester, Minn., and at Washington University, St. Louis.

Examination to Fill Vacancies in Army Medical Corps

An examination for appointment as first lieutenant in the medical corps of the regular army will be held, September 12-16. Examining boards, if necessary, will be convened at the following places, and applicants will be ordered to appear before the board most accessible to their homes: Boston; New York; Washington, D. C.; Fort Monroe, Virginia; Fort Bragg, North Carolina; Atlanta, Ga.; Fort Benning, Georgia; Columbus, Ohio; Carlisle, Pa.; Indianapolis; Chicago; St. Louis; Hot Springs National Park, Ark.; San Antonio, Texas; Fort Sill, Oklahoma; Fort Leavenworth and Fort Riley, Kansas; Fort Omaha, Nebraska; Fort Snelling, Minnesota; Denver; Cheyenne, Wyo.; El Paso, Texas; Los Angeles and San Francisco; Fort Lewis and Vancouver Barracks, Washington. Successful candidates will be ordered to an army general hospital or a large station hospital as first lieutenant of the medical reserve corps on active duty for a period not to exceed one year. After a period of observation, those applicants demonstrating necessary qualifications will be commissioned in the medical corps of the regular army to fill existing vacancies. To be eligible for appointment, the applicant must be a male citizen of the United States between the ages of 23 and 32 years, a graduate of an acceptable medical school, and must have had at least one year's hospital training subsequent to the completion of a four years' course of instruction in such medical school or its equivalent in practical professional experience as determined by the surgeon general in each case. The examination will consist of a physical examination; examination as to moral character and general fitness, and professional examination, the last to cover anatomy, surgery, practice of medicine, physiology and pathology, materia medica and therapeutics, and obstetrics and gynecology. Further information may be obtained from the adjutant general or the surgeon general of the army, Washington, D. C.

Foreign Letters

LONDON

(From Our Regular Correspondent)

July 16, 1932.

The Museum of the Royal College of Surgeons

The annual report of the conservator of the museum of the Royal College of Surgeons illustrates anew the dominance of John Hunter in British surgery and the fitness of Sir Arthur Keith for maintaining the hunterian tradition. The museum is the greatest pathologic collection in the world, but it is much more than that. The subject of John Hunter's inquiry was not merely disease but life itself, and it was to elucidate its mechanisms that he made experiments and amassed his collection of specimens, of which the museum is but an expansion. Sir Arthur Keith is the sixth to occupy the position of conservator. Under all its conservators the museum has continued to grow with the advance of knowledge, but one feature has remained constant: the museum today is arranged in the same divisions as in Hunter's time. But each conservator showed his predilections in his report. If Hunter had to draft one he would have emphasized his wonderful series of preparations which illustrate the anatomy of function, demonstrating the manner in which circulation, respiration, digestion, locomotion and reproduction, are effected in all forms of life. His "physiologic series," as it is still called, constituted the major part of Hunter's museum, and it still forms the dominant exhibit. Under Clift and Owen the physiologic department still received first place in the reports, but it was form rather than function that held their interest. They were morphologists rather than physiologists. Quekett worked in the generation that first applied the compound microscope to the elucidation of animal structure and function. With Flower came the darwinian period; anatomy was exploited, not to throw light on function, as was Hunter's aim, but to unravel degrees of relationship and lines of descent. Under Stewart, Hunter's physiologic series again became the center of attention, and now under the present conservator, whose report is the twenty-fourth drafted by him, darwinian influences are again in the ascendent.

Hunter created his museum to serve as a great engine of biologic research, because he believed that an understanding of disease and the discovery of rational means of treatment must be based on an accurate knowledge of the processes manifested by living matter. "At first sight it does look," says Keith, "as if our museum had lost its way and was being carried in a direction which Hunter never intended. If, however, those who read the reports will look not at their outward appearance but at their inward significance, they will see that, particularly in recent years, there are signs of a return to the hunterian point of view." Thus the additions of Mr. R. H. Burne, F.R.S., physiologic curator, throw light on the basal processes of vertebrate physiology—the origin of the lymphatic system, the anatomy of the gland of internal secretion, and varying arrangements of the nerves of the sympathetic system. The addition reported by the pathologic curator, Mr. Beadles, show an even greater representation of preparations that illustrate the nature of growth disorders of the human and the animal body. Even in the anthropologic section of the museum, which is mainly the creation of Keith, the main search is not to trace the history of extinct and of living races but to discover the physiologic process that has given each race its distinctive anatomic characters.

At various times there has arisen in the council of the college the feeling that, notwithstanding the contribution the museum was making to surgical pathology, it was not doing all it might for the advance of surgery. Under the advocacy of Sir Jonathan Hutchinson, laboratories were built over the workrooms on the museum for the purpose of experiments, but the attempt failed because experiments on living animals were excluded. Now under Lord Moynihan the council has returned to the desirability of bringing the museum more into the service of surgery. Sir Charles Ballance has continued his experiments on nerve suture and nerve grafting, which aim at discovering more efficient methods for restoring movement and sensation to paralyzed parts. By suture of the distal end of the divided hypoglossal nerve to the sympathetic cord in the neck he has shown that voluntary movement impulses can reach muscles over the sympathetic system. Mr. L. F. O'Shaugnessy, who has worked under Sauerbruch in Berlin, is investigating problems of thoracic surgery. Mr. H. P. Winsbury White is using the museum laboratories for an experimental investigation of the manner in which infection spreads from the urethra and bladder to the kidneys; Mr. E. Mortimer Woolf is studying the production of diverticula from the intestinal wall.

The Sterilization of Mental Defectives

The Central Association for Mental Welfare has expressed satisfaction in the *Times* at the recent report of the British Medical Association on the sterilization of mental defectives. In common with all organizations that have given consideration to the problem, the association regards it as axiomatic that no mentally defective person, as defined by the mental deficiency acts, should have children. Today the economic strain tempts many, including some local authorities, to think that by a general measure of sterilization the high cost of segregation in institutions might be avoided. But sterilization is not so simple a solution of the difficulty as it appears. It is necessary to know how far institutional care would still remain essential, however widely sterilization might be adopted; and, conversely, to know what types of defectives, when sterilized, could still be allowed to live safely under supervision in the community. The experience of the association, which includes knowledge gained in visiting the homes of defectives all over the country for twenty years, is that there is a percentage of defectives who can be, and many of whom are, usefully employed in the community. But in some of these cases the danger of propagation is great, and for such the association holds sterilization to be desirable. It should therefore be legalized, provided adequate safeguards can be devised against abuse. But the association cautions against expecting too much from this remedy. While there is general agreement that mental deficiency is largely the result of morbid inheritance, all the available evidence indicates that the proportion born of a parent who is actually defective is small. In the majority of cases the defect is not transmitted directly, but indirectly through "carriers."

The Changing Population of London

The 1931 census shows that the decline in the population of the central or administrative part of London continues while that of the outer districts, which make up "Greater London," increases. In the former the population in 1931 was 4,397,003, a decrease on that of 1921 of 87,520. In Greater London, which is roughly included in a circle of 15 miles radius from Charing Cross, the population was 8,203,942, an increase of 723,741 in the same period and thrice as great as the increase of the previous decade. In 1801 the population of administrative London was less than 1,000,000. Then the number rose to 4,536,267 a century later, since which time there has been a progressive decline. A noteworthy fact is that the average size of families has been reduced by 8.7 per cent, from 3.79 persons in 1921 to 3.46 in 1931. This decline of population is as great as in the preceding decade, when the population was exceptionally depleted by men killed in the war. It is a manifestation of the general decline of the birth rate throughout the country. A satisfactory feature is that there is less overcrowding. Overcrowding is estimated by the number of private families with a density of more than two persons to a room. The percentage of such families has fallen from 16.1 in 1921 to 9.6 in 1931.

Females are in excess of males in the proportion of 1,151 to 1,000, a proportion which is only a little less than that of 1921 (1,165 to 1,000) just after the war, in which so many males were killed, and greater than the prewar proportion of 1911 (1,127 to 1,000).

Dangerous Drugs

So many complaints have been received recently by the police with regard to the relative ease with which dangerous drugs are obtainable in London that detectives with special knowledge of the methods of drug smugglers have been detailed to make an investigation. It is alleged that cocaine and diacetylmorphine are being sold at certain night clubs and dance halls, and that a profitable trade is derived from supplying noxious drugs for small parties arranged by persons carrying on the traffic. When drug peddling became a serious menace in London, some years ago, drastic legislation was introduced, which provided that persons who even offered or agreed to procure dangerous drugs rendered themselves liable to penal servitude, and after a number of notorious traffickers were convicted the evil was stamped out. Lately there has been a revival of the trade, shown by the number of known addicts who, according to police information, are obtaining supplies from unauthorized sources. Immigration and customs officers at the sea and air ports have been asked to watch for signs of the traffic. The ordinary channels used by drug traffickers are not difficult to deal with, but state economies have resulted in such a shrinkage of preventive personnel that the detection of illicit traffic from the continent is a serious problem. Apart from regular landing places there are miles of unprotected coast on which motor boats might discharge illicit drugs worth a small fortune to persons prepared to take the risk of detection.

PARIS

(From Our Regular Correspondent)

July 6, 1932.

The Treatment of Alimentary Allergy

Mr. Charles Richet, Jr., and Mr. Couder have communicated to the academy a method to combat alimentary anaphylaxis. If the method is confirmed by others, it will render great service in these conditions, for the control of which therapeutics has at present only complicated procedures, such as the peptone therapy of Pagniez and of Valléry-Radot and the elimination method of Albert Rowe. Richet uses an entirely different principle, which he has described in an article in the *Presse médicale*. He says that it is difficult to produce an anaphylactic state by way of the digestive tract. It can be accomplished only by cleansing previously the intestinal mucosa, as Besredka has advised, by an abundant supply of bile immediately before the ingestion of the food. Richet concluded from this that one could produce the opposite effect by previously protecting the mucosa with an insulating substance, and he used for that purpose liquid petrolatum or petrolatum in a pure state, without the addition of phenolphthalein, which one finds in nearly all preparations of liquid petrolatum sold today as a remedy for constipation. In his opinion, it is the too rapid ingestion of unchanged proteins that produces anaphylaxis, and that is why Pagniez observed anaphylaxis in fast eaters. The observations of Richet include cases of recurring urticaria, Quincke's edema, painful diarrhea, dizziness and migraine arising after the ingestion of certain foods, often over a long period of years and having resisted the ordinary methods of desensitization. The treatment consisted solely of having the patient ingest a dessert spoonful of liquid petrolatum at the beginning and in the middle of each meal. In each case, the allergic disorders disappeared the next day. But the method must be carried out rather perseveringly in order to effect a cure, for, in the beginning, if the treatment is interrupted, the disorders may reappear. But they cease if the treatment is resumed.

The Danger of Allowing Psychopaths Their Liberty

The increase in the number of murders committed by the insane and by half-wits is beginning to arouse the public authorities, as well as the alienists. At the recent Congress of Legal Medicine, the chief of police of Paris deplored the fact that he was not better equipped in the legal sense and from the financial point of view. He is provided with only two inspectors for the supervision of patients who have been dismissed from asylums. However, the law of 1838 allows the prefects to "adopt whatever measures are necessary" when any persons disurb the public order and the safety of citizens. They can therefore intern agitators, but they seldom do so unless laws are violated. Dr. Claude, professor of the clinical aspects of mental diseases at the Hôpital Ste. Anne, has brought the question before the tribune of the Academy of Medicine and is seeking the means of combating the increasing number of tragedies due to insanity, as a result of the considerable number of psychopaths who have been allowed their liberty too long or who have been released after a period spent in special institutions. In the present state of affairs, it would be well to work toward the creation of a more flexible and more suitable organization for the examination of suspicious cases. The authors suggested to the academy to study specific plans, such as the creation of a medicojudicial commission with authority to intervene in all cases reported by the physicians or by the police officers. Furthermore, a more extensive surveillance of patients given their liberty would afford greater security. Finally, it would be necessary to create throughout France departments of mental prophylaxis, of which there is at present only one functioning (the one at Paris).

Polyneuritis Due to Apiol

Mr. Henri Roger of Marseilles reported recently to the academy a case of polyneuritis resulting from the ingestion of apiol. This product is no longer regularly used in France, since better methods have been devised to treat amenorrhea. It is rarely used other than by pregnant women who desire to bring on an abortion, as this substance can be easily procured in the pharmacies. The desired effect is not generally produced, but they absorb considerable quantities, and it is not rare for accidents to occur. Trillat and Thiers of Lyons and Loederich and Brûle of Paris have observed grave lesions of the liver and of the kidney. Polyneuritis under these conditions has now been observed for the first time in France by Henri Roger. But Mr. Netter pointed out that cases had been reported, during the past year, from the Netherlands, Yugoslavia and Germany. Van Ittalia of Leyden has shown that the various preparations incriminated contained tricresylphosphate, which appears to be the cause of this polyneuritis. Mr. Netter recalled the observations of polyneuritis made in the United States in connection with adulterations of the fluidextract of ginger. He requested the academy to institute an inquiry as to the possibility of such adulteration in the products sold to the public, and, in case of confirmation, to prohibit further sale of the substance, as was done recently in the Netherlands and in Hamburg. Such a prohibition will be the more easily accomplished because the preparations of apiol were suppressed back in 1928. Mr. Netter is of the opinion, in view of the possibility of such accidents, that the matter should be brought to the attention of surgeons, who, following the example of Doppler of Vienna, are using in France applications of tricresyl to the surface of the arteries of the testis or ovaries in order to effect a chemical sympathicectomy.

Immunization by Inhalation

Mr. Trillat, professor at the Institut Pasteur, who has devoted himself for many years to the study of miasmas and the propagation of infectious diseases by means of micro-organisms suspended in the air, has succeeded in demonstrating the correctness of his theories by bringing about the inverse operation;

namely, immunization. He made use of the infective agent of chicken cholera, after having shown that the contagion took place in the atmosphere of the poultry houses. He sprayed into this atmosphere dilutions of cultures, attenuated microorganisms and vaccines, and brought about thus the rapid disappearance of epidemics in the infected poultry houses. Dr. Roux presented the work of Dr. Trillat to the Academy of Sciences and called attention to the great interest that attaches to the research for the arrest of epidemics in inhabited places in the case of influenza, pneumonia and the like.

BERLIN

(From Our Regular Correspondent)

July 11, 1932.

The Antivivisectionists

The antivivisectionists in Germany do not play as big a part as in some other countries. Nevertheless it becomes at times necessary to take action against them. At a recent session of the Breslauer Medizinische Gesellschaft, Rosenfeld, with the approval of others, stated that, next to charlatanism, the antivivisectionists constitute a danger to the authority of the physicians, since they make the charge that such experiments are wholly useless and serve only to satisfy sadistic desires. In refuting these wild assertions, the great accomplishments of the past fifty years must be recounted and attention called to the humane methods employed in vivisection. The eradication of great epidemics and the advances of serotherapy and chemotherapy and in the diagnosis of disease have been initiated and extended by means of animal experimentation, which applies also to numerous surgical operations. Even the animals would protest against the antivivisectionists, for they have derived the greatest advantages from vivisection. Through animal experiments the protective serums against anthrax, swine erysipelas, hog cholera, foot and mouth disease, and the like, have been developed. Furthermore, human contacts with animals have been endangered by certain diseases. Psittacosis may attack the whole family; Bang's disease may affect the caretakers of stock, and undulant fever the keepers of goats. The crass ignorance of biologic and medical matters, even in educated circles, can be combated only by constantly calling attention to the great scientific achievements. Of course, animal experiments must be carried out as conservatively as possible, for which there are in Germany legal provisions, the details of which were recently discussed in these letters.

A Geographic Study of Goiter

Privatdozent Dr. Hans Joachim Arndt of Marburg reported recently on the results of a research that he had carried out in a large series of goiter cases, during his eighteen months stay in Russia. The researches are the outgrowth of a request made by the Notgemeinschaft der Deutschen Wissenschaft to Professor Aschoff of Freiburg that he institute researches in geographic pathology and establish for that purpose a suitable working center in Russia. Goiter was chosen as the classic problem of geographicopathologic research. The research conditions were highly favorable, as all the regions could be visited by the investigators and the patients could be selected and examined personally. The examinations were concerned chiefly with the field of pathology and anatomy. In the various regions of Russia, the average weight of the thyroid gland in the different age groups was established and thus the "life curves" of the thyroid gland were obtained, which constitute an important criterion for the diagnosis of goiter. The average weight of the thyroid gland in the regions in which goiter is prevalent is more than three times as much as in regions in which the disease is rare. It proved possible to set up a scale from region to region, with the aid of which it was possible to show that goiter depended to a certain extent on age and sex. Microscopic researches made it possible to distinguish three groups, as previous researches of the Bern and Freiburg schools had shown. The first group includes the simple enlargements of the thyroid gland, in which the structure corresponds fully to the normal thyroid gland and only a quantitative increase of the functioning tissue is observed. The second group shows a nodular enlargement, which appears to develop from cell complexes that are normally present in the thyroid gland. They present all the signs of a genuine tumor and are apparently identical with the adenoma of the thyroid gland. In the third group, in addition to an increase of the functional tissue, there are distinct changes in the tissue that correspond to the conditions that are usually observed in exophthalmic goiter. The third group claims today the chief interest of investigators, as it may develop secondarily from the first two groups. From these researches it becomes again apparent that there is no uniform anatomic basis for goiter; that, on the other hand, local factors appear to play a part and furnish the basis for the various types of goiter. Now, as in the past, the goiter problem centers in the study of the local conditions that cause the enlargement of the thyroid gland. Endogenous, constitutional factors found in the patients themselves play a secondary part, as was shown also by the researches in Russia. Nevertheless, in addition to the often discussed lack of iodine, the intensity of the solar irradiation appears to be of importance, among other things. Endemic goiter (that is to say, a simple increase of the normal thyroid gland tissue) is determined by geographic and climatologic conditions and constitutes merely a compensatory reactionary process; it is necessary in the interests of orderly body functioning and does not appear to be pathologic.

Meeting of Ophthalmologic Society

At the opening session of the Deutsche ophthalmologische Gesellschaft, Tschermak-Seysenegg of Prague spoke on Goethe's work in physiologic optics. He exalted Goethe as one of the founders of subjective physiology of the senses. From the numerous papers the following items have been abstracted: Baurmann of Göttingen found in research on the structure of the vitreous body—in contrast with the descriptions of other authors—a well developed and genuine canal extending through the vitreous body. The conception that such a canal is only simulated by a central vitreous body area of especially loose structure was rejected.

New methods for the treatment of detachment of the retina were presented by Lindner of Vienna. He described his experience in fourteen cases, with his so-called undermining method, which he regards as less violent than fixation by means of successive cauterizations (Guist). The danger of intraocular blurring through exudation or hemorrhoge is much less. The method has, however, the disadvantage that the retina thus fastened is functionally abolished. Weve of Utrecht has worked out a diathermic procedure for the treatment of retinal detachment. The principle is based on the closure of the lesions of the retina by means of multiple microdiathermopunctures. The current tension is reduced to a few milliamperes by leaving out the inactive electrode (unipolar method). For the control of localization of the lesion, such a micropuncture is allowed to precede further punctures, and the result is judged with the aid of the ophthalmoscope. The use of the ophthalmoscope is greatly simplified by the attachment of a small corneal contact device introduced by Zeiss, whereby the drying and blurring of the cornea is prevented during the operation. This device may be useful also for the determination of the meridian after the error due to astigmatism is thereby overcome. The exact localization in connection with an extremely conservative perforating microcoagulation technic, by repeated use of the ophthalmoscope, effects the rapid relief of the detachment with a maximal preservation of function and a minimal danger of complications. The technic is simple. The indications are more extensive than in the Gonin technic, as even the widest lesions can be smoothly healed at one sitting.

BUENOS AIRES

(From Our Regular Correspondent)

June 15, 1932.

Cyanosis Caused by Alveolar Hypoventilation

Dr. B. A. Houssay recently delivered a lecture before the Academia Nacional de Medicina of Buenos Aires on insufficient oxygenation of the arterial blood in patients with Ayerza's disease. Ayerza described, using the term "black cardiac patients," a certain type of patients with chronic bronchial or emphysematous disturbances, who present a clinical picture of cyanosis associated with an increase in the red blood cells, somnolence and other symptoms. Because of the cyanosis, the patients seem to be suffering from cardiac decompensation although they really are not. Later the cardiac insufficiency appears and the cyanosis increases. The speaker and his assistant Dr. I. Berconsky have observed several cases of Ayerza's disease at the Instituto de Fisiología of Buenos Aires. In all cases arterial cyanosis was present. The hemoglobin of the blood had an oxygen saturation of from 75 to 85 per cent of its volume instead of 95 per cent, which is normal. The imperfect saturation of the hemoglobin with oxygen was caused by the low pressure of oxygen (from 53 to 78 mm. instead of 100 mm.), as well as by the high pressure of carbon dioxide. Cyanosis was caused by the diminution of alveolar ventilation since the inspired air measured only from 250 to 300 cc., instead of 400 to 500 cc. Cyanosis caused by insufficient oxygenation of the arterial blood may be either acute or chronic. The acute form is observed in the superficial and rapid respiration; the chronic form is observed in several emphysematous or sclerous diseases, such as pneumonoconiosis, bronchogenic or pleurogenic disturbances, sclerosis complicated by pulmonary arteritis, and some other similar conditions. The disease of the Andes or erythremia from high altitude, described by Monje, probably is a form of alveolar hypoventilation. One should consider that alveolar hypoventilation exists whenever the pressure of oxygen of the alveolar air is lower than the barometric pressure of the locality in which the patient lives.

Undulant Fever

The national committee appointed in September, 1931, to study undulant fever in Argentina has presented a report. The first positive results of the seroreaction in man was observed in Córdoba by Dessy and Lorenzelli in 1922. The first case in which a positive diagnosis was made occurred in Mendoza in 1931. The first focus in goats was discovered by Sordelli and his collaborators. During the year 1931, 136 cases were observed in man, with six deaths, or 4.4 per cent. The clinical diagnosis was correctly made during an early period of the disease only in eight cases out of sixty-one cases of undulant fever which were observed in the several provinces, probably owing to the fact that the disease was unknown in the country. Several foci of undulant fever were discovered in twelve provinces and territories, the total number of which amounted to 230 foci during the year 1931.

Regulating the Universities

Several bills have been presented before congress in an attempt to bring about order in the several universities of Argentina. The bill proposed by members of the national executive powers has the following considerations: Since the universities should be considered as centers of investigation and teaching, it seems advisable to grant 10 per cent of the total amount collected from the revenue tax to support the expenses of schools and universitary centers. Free teaching in colleges seems advisable, while the limitation of the number of attendants to the schools does not. Teaching should be given by full time professors, who should obtain better salaries than those given to professors who are not full time teachers. The universities should be granted complete autonomy. The administration board in each faculty will consist of a group formed by a council of seven regular professors, four substitute teachers and four students. Several other bills have been offered for consideration. Some bills which have been presented before the government are inspired either in an open demagogic spirit or in absolute ignorance of matters related to a university.

Journals of the Asociación Médica Argentina

The Asociación Médica Argentina will merge three of the journals which heretofore have been published separately under the names of *Revista de la Asociación médica argentina, Revista de medicina interna y de tisiologia* and *Revista de especialidades* into one which will be named *Revista de la Asociación médica argentina.* This journal will be published monthly and will contain the articles presented before the confederated medical societies of internal medicine, phthisiology, ophthalmology, otorhinolaryngology, psychiatry and neurology, pharmacology and therapeutics, toxicology and legal medicine, hygiene, and some other medical societies of Buenos Aires. The articles presented before the Sociedad Argentina de Biología and its branches will continue to appear, as they have appeared heretofore, in the journal *Revista de la Sociedad argentina de biologia.*

TURKEY

(From Our Regular Correspondent)

Ankara, June 25, 1932.

Early Obstetrics in Turkey

Prof. Besim Omer Pasha, head of the department of obstetrics at the medical school, where he has been teaching now for forty-seven years, has recently added to his many publications a small book on the history of obstetrics in Turkey. It has been written for laymen and midwives. Among the fifty illustrations are those of some early western and eastern methods in obstetrics; in connection with the early practice of obstetrics in Turkey, three are especially picturesque: One is the preparation of the floor bed with a charcoal brazier at the side in a room with latticed window, under which there is the customary low settee. The second shows the old midwife taken from her home at night to attend a birth, mounted on a donkey and accompanied by the husband of the woman to be confined, who is carrying the lantern, and by the night watchman, who is carrying the specially constructed chair on which the parturient is to be placed. The third shows a case of asphyxia neonatorum with the midwife placing the dead child on a small table; the placenta, with which the child is still connected, is placed on a grill over a charcoal brazier, and the midwife is trying to bring life back by blowing air into the placenta with a pair of bellows.

An interesting account is given from the pages of Evliya Tchelebi, an ecclesiastic of high rank, of Esmahan Kaya Sultan, a daughter of Sultan Murad IV (1623-1640), who died during childbirth at the palace on the Golden Horn. Of this event we read that "forty persons had been reading the Koran from beginning to end, 40,000 prayers had been said during the night, a generous amount of money had been distributed among the poor, and 500 women and children who had spent the night at the gates of the palace waiting for news had been provided with new clothing. Great was the joy of the people when the birth of a daughter was announced; but when it was learned that because of an oversupply of adipose tissue the placenta was sticking to the heart of the lady sultan, their rejoicing turned into infinite sorrow. That the placenta might be delivered, the lady sultan was put into a kelim and swung right and left; she was twice hung up with her head down and then was put into a honey barrel filled to the brim with orange blossom water; when after three days the placenta was still not forthcoming, one of the midwives oiled her hand and arm with almond oil and inserted her hand and arm up to the elbow

into the pelvis; after a few moments she produced a piece of tissue, saying 'at last the placenta.' A second midwife said 'there should be more of it.' Then she introduced her hand and brought out additional pieces of tissue. Undergoing such torture, the mighty Sultan's beloved daughter closed her eyes for ever the next day."

Then the author gives a short description of superstitious practices in connection with complicated births among primitive peoples, and of obstetric practices in Turkey before the days of trained midwives. At that time when the only preparation a midwife had was an apprenticeship, the contents of her bag were a bottle of olive oil, a jar of petrolatum, a scalpel, a pair of scissors and the root of an herb known as the "hand of mother Mary." The root was cleared of the soil by just putting it into a bowl of water for a while previous to introducing it into the cervix. Birth facilitating qualities were ascribed to the use of holy water, the wearing of a belt with Koran inscriptions, the keeping of a candle, a sword or a turban from the mausoleums of the great in the confinement room, and the drinking of water from the palms of the husband's hands. If she attended a primipara, the midwife would bring a specially constructed chair, much like the high chairs now in use for children, from which immediately after the birth of the child the woman was carried to the floor bed, which procedure often must have been the cause of severe hemorrhage.

The author's comment on the history of medical education throws an interesting sidelight on the development of obstetrics. He refers to an address which he delivered on the occasion of "medical day," when he said: "Looking west, we find that classical medical education was instituted only one century ago; looking east, we find that the teaching of medicine can be traced back at least six centuries. Why not regard as our first teaching center the school and hospitals established in Kayseri by the Seljuks instead of the school established under Sultan Bayezid 200 years later in Brussa.

Obstetrics did not occupy a special place in the curriculum of early Turkish institutions; only in the books on surgery are found chapters on medicaments to be used, and measures to be taken in complicated births, from which may be inferred that the obstetrics was being taught together with surgery. In the illustrated surgical handbook written in 1465 by Sherefeddin Ali are discussions and illustrations of retractors and other instruments some of which were much like those used by Ebulkasim.

At the imperial medical school founded by Sultan Mahmoud II in 1826 in Istanbul there was a more progressive curriculum. At this period religious fanaticism did not permit the dissecting of human bodies and anatomy still had to be studied from manikins. In 1836 the medical and surgical departments were merged, and Professor Bernard of the Vienna medical school became the director. The school was reorganized along European lines, and henceforth the students had the opportunity to observe Professor Bernard perform necropsies at the Austrian hospital. In 1843 the first courses for midwives were organized and in 1845 the first certificates were issued. The first special course in obstetrics for physicians was organized in 1852 and soon the translation of obstetric textbooks from French into Turkish began. Then about 1880 a number of honor students were sent to France for postgraduate work along special lines. In one of these groups was Dr. Besim Omer, who specialized in obstetrics and pediatrics under Professor Budin of Paris and on his return in 1885 was appointed lecturer on obstetrics at the medical school in Istanbul. At first, Sultan Abdul-Hamid II (1875-1908) favored the professors in the medical school but later, anticipating a possible political influence, saw to it that the number of physicians allowed to engage in postgraduate work in France or Germany was restricted. But by the time of the adoption of the constitution in 1908 a great number of physicians had availed themselves of the opportunity to do postgraduate work abroad. While Besim Omer Pasha is an advocate of the French school and French methods, the late Dr. Asaf Dervish Pasha, professor of gynecology at the medical school and author of "diseases of women," advocated German methods. Both may be regarded pioneers of obstetrics in Turkey for to both belongs the honor of having paved the way for the establishment of scientific obstetrics. It was not easy to overcome the reluctance of Turkish women to seek the advice of physicians; fifty years ago it was still customary for women in childbirth to be attended exclusively by midwives. It required patience and tact on the part of those early obstetricians to overcome that reluctance at first in the homes of the wealthy and then gradually in the outpatient departments of the hospitals, where in the beginning many a young woman refused to lift her veil or give her proper age.

ITALY

(From Our Regular Correspondent)

June 15, 1932.

Convention of Sport Physicians

The first national convention of sport physicians was held in Rome. The chairman, Professor Baglioni, director of the physiologic institute of the University of Rome, in his opening address, discussed the duty of the modern physician in connection with sport activities. Sport physicians should supervise and direct all matters affecting the musculature, the brain and the psyche that come up in any form of sport activity and collaborate in raising the physical and moral standards of young persons who engage in sports. Improvement of the individual and of the race constitutes part of the purpose of preventive medicine, which has as its bases physiology and morphology. This convention of sport physicians planned to consider, as the central theme, the biologic evaluation of participation in sports from age 18 on. Only one topic was considered: "The Physical Evaluation of the Sport Devotee." Papers were presented by Professors Cassinis, Talenti and Bucciardi and Dr. Viziano.

Professor Cassinis dealt with anthropometric and morphologic evaluation of sport devotees. The purpose of the anthropometric evaluation is to show, on the one hand, the capacity to withstand the hardships of sport, and, on the other hand, the candidates' capacity to accomplish in the various sports. The anthropometric measurements, carried out by the Viola method, for the purpose of constitutional morphologic evaluation, and supplemented by the functional examination of the various organs, are designed to secure an exact method of reaching an opinion not only as to robustness but also as to the candidate's respective ability in sport. Dr. Viziano dealt with the evaluation of the cardiocirculatory apparatus, emphasizing that it is above all necessary to ascertain the reserve energy of the heart by observing the influence that participation in sports exerts on the circulatory function. Studying the size of the heart after a physical effort, the speaker noted that only when the fatigue overcame notably the reserve force of the organism was there acute dilatation of the myocardium. Since previous infectious diseases may have an influence, before the training of a subject is begun his personal history should be taken. With regard to arterial, venous and capillary pressure in relation to sports, the speaker urged that account be taken of the individual's occupation—a factor that is often overlooked—lest fatigue be added to fatigue. It is necessary to select carefully the teams in order not to force too much the reserve strength of any subject, while the energies of the others are not used sufficiently.

Dr. Talenti spoke on the evaluation of the respiratory apparatus. He discussed the oxygen requirements, the carrying of oxygen to the muscles and the behavior of pulmonary ventilation, which he recorded with a spirometer of his own manufacture. In conclusion, he affirmed that, in labor, greater importance attaches to an increase in the depth of breath-

ing than to the frequency of the respiratory acts. Professor Bucciardi spoke on the evaluation of the neuromuscular apparatus, for which, the speaker emphasized, it is difficult to set up a rigid system. The criteria of evaluation must be based on multiple conditions and must take account of numerous factors. Bucciardi demonstrated the use of an ergograph that enables the examiner to record graphs when the arm is maintained in any position whatever. The official papers on the main topic having been completed, further communications on kindred topics were presented.

Professor Martinez spoke on the influence of sport on the constitution of the female genitalia, stating that from numerous observations that he had made in Bologna it appeared that rational abdominal gymnastics is useful for the development of the pelvis and of the female genital apparatus. "Athletics for Women" was the topic chosen by Madame Professor Zanetti and Professor Baglioni. The conception was brought out that sport activities, since born of the need for exercise, stimulate the regular development not only of the muscles but also of the heart, the respiratory apparatus and the kidneys.

It was decided to hold next year a second national convention at Bologna, or possibly to announce an international convention to be held at Rome.

Prophylaxis of Typhoid

The general manager of the public health service (ministry of the interior) has sent to the "provincial physicians" a circular letter concerning regulations pertaining to the hygiene of the soil and of dwellings and to the prophylaxis of typhoid. The sanitary authorities are urged to promote work directed toward the improvement of sanitary conditions of the soil in urban and rural communities and to prevent the improper disposal of waste waters from households and to inquire into the state of maintenance of the drains, cisterns and wells. The various systems of defense against flies are to be applied, especially in places where there are patients with infectious diseases. The vigilance with respect to food products and drinking water is to be intensified. In localities where typhoid is endemic, the causes that maintain the contagion will be sought out and measures will be taken to suppress them. A prompt diagnosis of suspected cases will be provided and search for carriers of Bacillus diphtheriae will be made among the members of the patients' families. Hospitalization of patients will be encouraged. Antityphoid vaccination will be extensively applied, especially in localities that are the seat of epidemics.

Marriages

WILLIAM G. STEPHENSON to Miss Mamie Louise Barnes, both of Chattanooga, Tenn., June 15.

RANDOLPH L. ANDERSON, Richmond, Va., to Miss Ruth Grove of Lewisburg, Pa., June 30.

GEORGE O. THOMPSON, Alliance, Ohio, to Miss Gwendoline Copeland of Cleveland, recently.

MORRIS S. ROSENBLUM to Miss Mathilda J. Meritzer, both of Youngstown, Ohio, recently.

CHARLES POWELL CAKE, Detroit, to Miss Janette Osborn of Lawrenceville, Va., May 28.

JAMES R. BLOSS to Miss Musette Hollobaugh, both of Huntington, W. Va., July 14.

ROLAND I. GRAUSMAN to Miss Elizabeth Strauss Block, both of New York, July 30.

JOSEPH J. KRONZER, Oshkosh, Wis., to Miss Lucille Wagner of Cleveland, May 23.

GAMBER F. TEGTMEYER, Milwaukee, to Miss Margaret Louise Brown, June 18.

WILL S. NICHOLS, Lake City, Fla., to Miss Eleanor Haile of Live Oak, June 28.

EDGAR ANDREW RYGH to Miss Ernestine Kolbus, both of Chicago, July 29.

Deaths

John S. Helms ⊕ Tampa, Fla.; Memphis (Tenn.) Hospital Medical College, 1891; member of the House of Delegates of the American Medical Association from 1918 to 1922 and again in 1927; past president of the Florida Medical Association and the Hillsborough County Medical Society; member of the Southern Surgical Association; member of the board of governors of the American College of Surgeons; surgeon in chief to the Tampa Children's Home; director of the division of surgery, Tampa Municipal Hospital; aged 61; died, July 24, of heart disease.

Charles George Lucas ⊕ Louisville, Ky.; University of Louisville School of Medicine, 1890; clinical professor of gastro-enterology at his alma mater; member, secretary and formerly president of the American Gastro-Enterological Association; fellow of the American College of Physicians; served during the World War; aged 63; on the staff of St. Joseph Infirmary, where he died, July 7, of heart disease.

Arkell Roger MacMichael, New York; College of Physicians and Surgeons, Buffalo, 1882; New York Homeopathic Medical College, 1883; formerly professor of clinical medicine and applied homeopathic therapeutics, New York Homeopathic Medical College and Flower Hospital; aged 76; died, June 29, in a hospital at Santa Barbara, Calif., of heart disease.

Frank Jay Van Kirk ⊕ Bellingham, Wash.; Hamline University Medical Department, Minneapolis, 1900; member of the American Academy of Ophthalmology and Oto-Laryngology and the Pacific Coast Oto-Ophthalmological Society; fellow of the American College of Surgeons; aged 64; died, May 4, of coronary thrombosis.

William Edward Synan, Fall River, Mass.; University of Pennsylvania School of Medicine, Philadelphia, 1892; member of the Massachusetts Medical Society; aged 60; on the staff of the Union Hospital, where he died, June 14, of hypertension and arteriosclerotic heart disease, auricular fibrillation and chronic interstitial nephritis.

Victor A. Aimone, Washington, D. C.; Georgetown University School of Medicine, Washington, 1912; served during the World War; medical officer in charge of the U. S. Veterans' Administration Hospital; aged 45; was shot and killed, July 13, by a former patient.

Charles E. Lewis, Grove City, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1895; fellow of the American College of Surgeons; for thirty-six years medical missionary in China; aged 66; died, July 4, of biliary obstruction and septic cholangeitis.

Charles A. Van Dervoort ⊕ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1893; medical director of the Fidelity Mutual Life Insurance Company; aged 65; died, July 3, in the Bryn Mawr (Pa.) Hospital, of heart disease.

Willis F. Cobb, Lyle, Minn.; Chicago Medical College, 1874; member of the Minnesota State Medical Association; for six years mayor of Lyle; formerly president of the school board; aged 84; died, June 3, of cardiac decompensation.

John Ebenezer Pressley, Abbeville, S. C.; Atlanta (Ga.) College of Physicians and Surgeons, 1908; aged 49; died, June 8, in the Emory University Hospital, Atlanta, of coronary occlusion, hypertension and arteriosclerosis.

James William Hempstid, Burrton, Kan.; American Medical College, St. Louis, 1885; member of the Kansas Medical Society; aged 71; died, May 28, at Hutchinson, of myocarditis and arteriosclerosis.

Ralph Sanders Stevens, Princeton, N. C.; University of North Carolina School of Medicine, 1905; member of the Medical Society of the State of North Carolina; aged 47; died, May 20, of heart disease.

William Leonard Jerman, Pasadena, Calif.; Eclectic Medical Institute, Cincinnati, 1873; Medical Department of Hamline University, Minneapolis, 1897; aged 81; died, May 20, of cardiorenal disease.

William I. Marsalis ⊕ Centreville, Miss.; Louisville (Ky.) Medical College, 1893; aged 58; died suddenly, May 28, of acute dilatation of the heart, coronary thrombosis and hypertension.

Harry Archibald Baker, Minneapolis; University of Minnesota College of Medicine and Surgery, Minneapolis, 1901; aged 52; died, June 8, of coronary thrombosis and diabetes mellitus.

Frederick L. Deck, St. Louis; St. Louis College of Physicians and Surgeons, 1898; aged 68; died, June 10, in the Barnes Hospital, of intestinal obstruction due to strangulated hernia.

Patrick Cleveland Simmons, Arlington, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1910; aged 52; died, May 29, in a hospital at Dothan, Ala., of meningitis.

Joseph J. Greenblatt, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1908; aged 45; died, July 2, in the Jefferson Hospital, of erysipelas and uremia.

Robert E. Limerick, Corinth, Ky.; Medical College of Ohio, Cincinnati, 1884; member of the Kentucky State Medical Association; aged 73; died, May 28, in Cordova, of uremia.

Frank Willis Corson, Tidioute, Pa. (licensed, Pennsylvania, 1882); member of the Medical Society of the State of Pennsylvania; aged 71; died, May 16, of myocarditis.

William Harwell Hodson, Los Angeles; Bellevue Hospital Medical College, New York, 1882; aged 73; died, May 9, of thrombosis of the coronary and cerebral arteries.

Harvey Gill Baldwin, Seagoville, Texas (licensed, Texas, under the Act of 1907); aged 71; died, June 8, in Dallas, of cerebral hemorrhage and arteriosclerosis.

Benjamin Coe Irwin, Springdale, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1889; aged 68; died, June 15, of cardiorenal vascular disease.

Jasper E. Wagner, Paris, Ohio; Starling Medical College, Columbus, 1896; aged 64; died, May 30, of pulmonary edema, myocarditis and mitral stenosis.

Henry D. Rickenbach, Pittsburgh; Medical Department of the University of the City of New York, 1887; aged 72; died, June 2, of acute myocarditis.

Grant J. Pollard ✠ Oriskany Falls, N. Y.; University of Vermont College of Medicine, Burlington, 1890; aged 66; died, May 15, of endocarditis.

George Robertson, Eolia, Mo. (licensed, Missouri, 1900); member of the Missouri State Medical Association; aged 67; died, June 13, of septicemia.

James Edward Orr, Detroit; McGill University Faculty of Medicine, Montreal, Que., 1888; aged 70; died, June 14, of carcinoma of the sigmoid.

Amzie B. Jenkins, Waxahachie, Texas; Vanderbilt University School of Medicine, Nashville, Tenn., 1876; aged 78; died, in June, of senility.

William Roberts, Denver; Denver and Gross College of Medicine, 1906; aged 64; died, June 20, in Fitzsimons Hospital, of carcinomatosis.

Cornelius S. Powell, Somerville, Tenn.; Meharry Medical College, Nashville, 1909; aged 53; died, June 10, of cardiorenal vascular disease.

Le Roy B. Sherman, New York; New York Homeopathic Medical College and Hospital, 1889; aged 72; died, June 15, of diabetes mellitus.

Winfield W. Pulliam, Dow, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1883; aged 81; died, June 5, of diabetes mellitus.

Horace Hobart Hollister, Cody, Wyo.; Long Island College Hospital, Brooklyn, 1874; aged 91; died, May 31, of chronic myocarditis.

James J. Beaty, Jennings, Fla.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1893; aged 70; died, June 22, of heart disease.

Hanna Burroughs Mulford, Haddonfield, N. J.; Cleveland Medical College, Homeopathic, 1892; aged 88; died, June 9, of arteriosclerosis.

William J. Davis, Los Angeles; Chicago Homeopathic Medical College, 1888; aged 70; died, May 11, of carcinoma of the prostate.

William D. Swaney, Columbia, Mo.; Medico-Chirurgical College of Kansas City, Mo., 1903; aged 59; died, June 4, of heart disease.

Cyrenius C. Sayles, Langston, Mich. (licensed, Michigan, 1900); Civil War veteran; aged 92; died, June 19, of cerebral embolism.

Charles T. Donohoe, Chicago; Jenner Medical College, Chicago, 1910; aged 63; died, July 25, of chronic myocarditis.

James Jaynes, Sneedville, Tenn. (licensed, Tennessee, 1889); aged 82; died, June 27, of nephritis.

John W. Hornby, Newark, Ohio; Columbus Medical College, 1888; aged 74; died, May 9.

Bureau of Investigation

THE B. & M. CASE

The Government Wins a Hard-Fought Case Against a Fraudulent Consumption Cure

The lay public, and even a large part of the medical profession, has little idea of the terrific odds against which federal officials have to work in order to protect the public against fraudulent nostrums. Following the Johnson case of some years ago, the United States Supreme Court decided in a divided opinion that the statement in the original Food and Drugs Act to the effect that any medicine which bore on its label a statement which was "false or misleading in any particular" really meant statements which were false or misleading in certain particulars, namely, only those relating to composition and origin and not those relating to therapeutic effects. This blow to the law resulted in a special message being submitted to Congress by the President, urging an amendment to the law that would specifically cover false claims for curative effects. The Sherley Amendment was the result. This amendment, in its original form, declared, in effect, that a "patent medicine" for which "false or misleading" therapeutic claims were made would be deemed misbranded. Due, however, to the political power of the "patent medicine" interests, this phrase was changed before the bill was passed to read "false and fraudulent."

As a result, federal officials, in order successfully to prosecute "patent medicine" quacks, have to prove not only that the therapeutic claims are false, but also that the manufacturer, in making such claims, has been guilty of intentional fraud. Only those who are familiar with court procedure can have any idea of the difficulties besetting the federal officials in their efforts to prove to the satisfaction of a lay jury that the exploiter of a "patent medicine" had not only lied about his product, but *knew* that he had lied!

On July 19, 1932, in the Federal District Court, Baltimore, a flagrantly fraudulent "patent medicine" known as "B. & M." was declared misbranded. The case consumed more than three weeks and was considered by the officials of the Food and Drug Administration to be one of the most important in the history of the administration of the Food and Drugs Act. B. & M., according to the testimony given in the trial, was originated by one W. P. McClellan who owned a livery stable and used B. & M. on his horses. F. E. Rollins, the present chief owner of B. & M., was a bookkeeper for McClellan and gradually acquired more and more stock in the B. & M. company and finally purchased McClellan's interest. Rollins had also been a court reporter and used his knowledge of the rules of court evidence to his advantage in the present case.

B. & M. Remedy is marketed from Boston by the F. E. Rollins Company. It is a simple liniment of, essentially, turpentine, ammonia and egg. It used to be known as "B. & M. External Remedy" and the name of the company used to be the National Remedy Company. The stuff has always been sold as a remedy for such serious conditions as tuberculosis, pneumonia, influenza, and a number of other pathologic states.

Some twelve years ago the National Remedy Company was prosecuted in Massachusetts under the fraudulent advertising law of that state. The case was brought by Dr. William C. Woodward, who at that time was Commissioner of Health of Boston, but is now Director of the Bureau of Legal Medicine and Legislation of the American Medical Association. Dr. Woodward was successful in this suit and the concern was found guilty. To the best of our knowledge, this is the only case on record in which a "patent medicine" exploiter has been found guilty under a state law governing fraudulent advertising—although every state has such a law and such laws are probably violated every day of the year.

In 1922 the federal government brought a case against B. & M., but because of lack of preparation on the part of the prosecution and an underestimate of the legal tactics of the exploiters of B. & M., the nostrum concern won. Later the government made further seizures of B. & M. and in 1929 the company consented to a judgment of condemnation. They persisted, however, in selling their stuff as a cure for

tuberculosis in spite of warning from the officials of the Department of Agriculture that in certain statements printed on the bottle, label and carton and in the literature accompanying the goods, they were violating the national Food and Drugs Act.

THE PRESENT CASE

In the case that has just been decided, the government brought suit against the F. E. Rollins Company, by way of seizure of this firm's goods, because of false and fraudulent claims for therapeutic effects made for the preparation in a booklet issued by the company. The trial lasted three weeks and was tried in the United States District Court at Baltimore before Judge W. Calvin Chesnut. Mr. Simon E. Sobeloff, district attorney at Baltimore, was counsel for the government.

The lawyer chiefly concerned in defending the F. E. Rollins Company was Melvin M. Johnson—who also is president of this "consumption cure" concern. Mr. Johnson, who was called also as a witness, testified that he is a member of the Massachusetts Bar Association, of the American Bar Association, a founder and life member of the American Law Institute, a professor in Boston University Law School, a trustee of Tufts College and *Chairman of the Board of Visitors of Tufts Medical School!* [Italics ours.—ED.] Mr. Johnson had acted as counsel for the nostrum concern in its various other brushes with the authorities. It may be interjected at this point that it is not at all uncommon for a "patent medicine" concern to have a lawyer as an officer of its company. From a practical point of view, a lawyer and an advertising man are much more necessary to commercial success in the selling of quack remedies than is a physician or a pharmacist.

The government introduced as witnesses nineteen national authorities in the fields of medicine, surgery and pharmacology, who testified to the falsity of the claims made for B. & M. The sum and substance of the evidence given by these men was to the effect that B. & M. was not an effective treatment for tuberculosis and the other diseases mentioned. The physicians who aided the government were Drs. E. M. K. Geiling, Lewellys F. Barker, Samuel Wolman and Arthur Grollman, all of Johns Hopkins University; J. W. Sever of Boston; Victor Cullen, Superintendent of the Maryland State Sanitarium; Cleaveland Floyd of Harvard University; John B. Hawes, II, of Boston; Lawrason Brown of Saranac Lake; Gordon Wilson of the University of Maryland; Robert Kerr, Director of Tuberculosis Control Work of New Hampshire; Carl C. MacCorison, Superintendent of the North Reading Sanitarium, Mass.; J. F. McMurry of New York City; Clarence R. Hines, Amesbury, Mass.; Charles Kaufman of New London, Conn.; Lewis J. Battle and Caryl Burbank of Washington, D. C.; Paul Turner, Superintendent of the Kentucky State Sanitarium, and Robert Soutter of Boston.

THE TESTIMONY OF DAVID L. MARTIN

The only physician who went on the stand for the F. E. Rollins Company was the concern's "medical adviser," Dr. David L. Martin of Boston. Dr. Martin's testimony in the case gave eloquent evidence of his scientific background. After testifying that he was thirty-five years old when he was graduated by a homeopathic school, and prior to taking his medical course had been a preacher for nine years and that his congregation paid his way through medical school, he told the jury that he first heard of B. & M. when he was called to treat a patient with pneumonia. Dr. Martin said that he had prescribed Antiphlogistine, but that the patient's family suggested the use of B. & M. and Dr. Martin agreed that it was all right to use it. Later, he said, F. E. Rollins came to see him and, as Dr. Martin put it, "explained the work that he was doing with B. & M. and it appealed to me . . . so we have been working together ever since." Dr. Martin further testified that B. & M. was such a wonderful preparation that, when applied, the character of the eruption that it invoked indicated the nature of the ailment for which the patient was being treated! To quote from Dr. Martin's testimony:

"Now, if a man has the flu, he will get an eruption of the vesicles filled with water; if it is t. b., we get an eruption with a little black pin head, mottled or pin head; if it is a mixed infection, we will get sometimes as large as the thumb-nail where the skin will slough right off."

Nor was this the only esoteric quality of B. & M. When Dr. Martin was asked if he had had any experience in treating a kidney infection with this "patent medicine," he replied:

"Applying it over the kidney sometimes it will outline almost the absolute spot on the outline of the kidney on the back. I have had large abscesses drawn right out on the back from the use of B. & M."

Dr. Martin also described in his testimony cases of men and boys who had run nails through their feet, with resulting "blood poison," and on which he had used nothing but B. & M. When asked if he had never used tetanus antitoxin, he testified that he had not. When the Court expressed surprise, Martin said that while tetanus antitoxin was the routine treatment, he had never used it, but always used B. & M. and had never had any failures. He added, in answer to the judge's question, that he considered B. & M. "a sufficient substitute for anti-tetanus serum." Mr. Sobeloff, attorney for the government, asked Dr. Martin what he knew about tetanus as to its nature, and he replied that he knew nothing. But the attorney pointed out that as he had treated tetanus with B. & M., he must be familiar with the disease. Then followed this testimony:

MR. SOBELOFF.—What is tetanus?
DR. MARTIN.—It is simply rapid inroad of the streptococcus infection in the blood stream.
MR. SOBELOFF.—Is tetanus a streptococcus infection or is tetanus an infection peculiar to itself of a specific germ?
DR. MARTIN.—Well, I don't know that they have isolated the particular germ. I was taught it was streptococcus.
THE COURT.—What does it come from, doctor? What causes it?
DR. MARTIN.—Nobody knows. It is a germ; one of those germs.

Later, in the same piece of testimony, when Dr. Martin was asked if he knew what the tetanus bacillus is, he replied: "I don't know; I am not up on those preparations." Dr. Martin testified that at first he was paid $50 a month for helping Rollins, but that later they increased his emoluments to $75 a month.

DR. PEASE AND THE PEASE LABORATORIES

But from the standpoint of the honor of the medical profession and the protection of the public health, the most disheartening feature of the case was not the obvious ignorance of Dr. Martin, but the statements by both F. E. Rollins and the company's lawyer-president, Melvin M. Johnson, that the booklet on which the government brought its case charging fraudulent claims, had been prepared and much of it written by Dr. Herbert D. Pease of the Pease Laboratories, New York City. The contract with Pease, according to the uncontradicted testimony in the case, was that nothing was to go into the booklet that Pease could not go into court and testify to.

The testimony showed that Dr. Pease was hired first as "expert witness" by Mr. Johnson to testify in court in support of B. & M. Later, after Rollins and Johnson decided to change their "literature," Pease was employed to rewrite or edit the booklet. There was offered in evidence the manuscript of the B. & M. booklet, together with a letter with which it had been transmitted by Dr. Pease to Mr. Johnson. The letter, dated May 1, 1931, read:

"Mr. Johnson, here is the material in a rather rough form. I trust the printer will do well with it. The tabulations should, of course, be set up evenly. There will be some proof corrections and I am not attempting to set things in detailed form tables just at present. The new plates are superior to the old. It might be well to have Mr. Fenwick see all this.

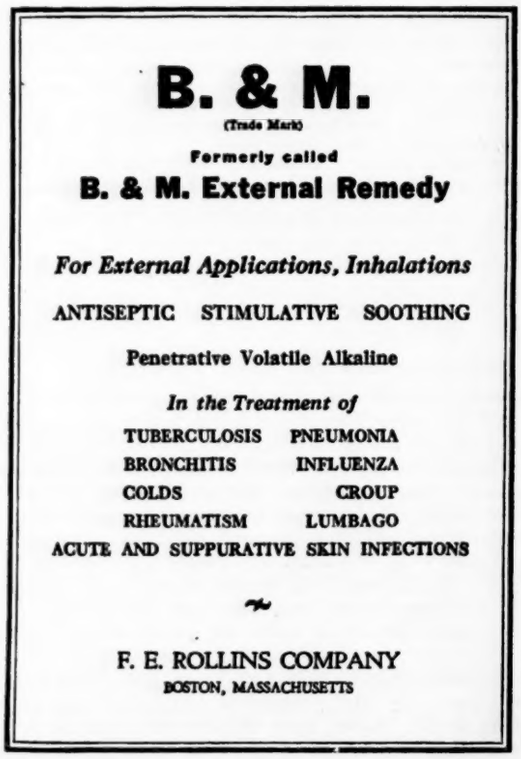
Very hastily,
H. D. PEASE."

Both F. E. Rollins himself and his president-attorney, Melvin M. Johnson, practically rested their entire case on the fact that they had paid Pease $15,000, for which he was to revise their literature and give it a "scientific" background. This was to enable them to come into court and say, as they did say, that the best evidence of their good faith was that they had employed a physician who was supposed to rank high in his profession, who is a member of the New York State Medical Society and a Fellow of the American Medical Association, to furnish scientific evidence for the claims made for B. & M. and to permit no statement to go into their booklet that could not be supported by the man who had these qualifications.

It is worth reminding our readers at this point, that it was Dr. Pease who was alleged to have furnished a favorable

report for the poisonous thallium acetate depilatory "Koremlu," as was brought out in THE JOURNAL of July 30, 1932. It is Dr. Pease who is quoted by the exploiters of the preposterous nostrum "Dur-Inda," previously known as "Lukutate." It was the Pease Laboratories that furnished the fantastic evidence for the exploiters of "Vapex," by which that concern purported to show that because a relatively large amount of Vapex, when enclosed in a small container, would give off enough fumes to destroy certain bacteria, that therefore a drop of Vapex on a pillow would kill the germs of a common cold. And B. & M., Koremlu and Vapex are by no means all of the nostrums for which the Pease Laboratories have furnished reports during the past few years.

It is significant that while Dr. Pease was present during the first part of the B. & M. trial when the government was presenting its case, he disappeared at the time when he could have gone on the stand to testify for the B. & M. concern which had hired him. His absence brought comment from the court and the preposterous implication from the nostrum interests that Pease had been intimidated by the American Medical



Photographic reproduction (reduced) of the front cover of the "B. & M." booklet, much of which, according to the sworn evidence in the B. & M. case, was written by, and all of which was prepared under the supervision of, Dr. Herbert D. Pease of the Pease Laboratories.

Association. In order to get Dr. Pease on the stand the government attempted to subpoena him as its witness, but were unable to get in touch with Dr. Pease, either through his laboratory, his home, or any other place. Lawyer-President Johnson, in his closing argument, asked the jury to sympathize with the owner of B. & M. because the man (Dr. Pease) to whom he (Rollins) had paid $15,000 and who had written or checked every word in the pamphlet had "welched" and "walked out on him" at the last moment. Johnson said he would not rely on a "man who was yellow." Yet earlier in his testimony, Mr. Johnson admitted that it was he (Johnson) who had advised Rollins to employ Dr. Pease because he was a graduate of a good medical school, a Fellow of the American Medical Association, and an adviser of many large (nostrum?) concerns.

THE B. & M. BOOKLET

To return to the B. & M. booklet: About one-half of this book is made up of what is described as "Scientific Evidence," and which, according to Mr. Johnson, "was written by Dr. Pease and nobody else so far as we know." The so-called evidence is not scientific and the data that is furnished may be counted on only to confuse the lay public and to convey to that public the idea that there is a scientific basis for the use of this mixture of ammonia, turpentine and egg when applied to the chest as a means of "drawing out" the germs of tuberculosis from the lungs. Judge Chesnut, in his charge to the jury, in referring to this so-called "Scientific Evidence," said:

"You can consider whether this scientific data thus arranged was for the purpose principally of being superficial impressions to the layman or whether it has any real value to B. & M. with regard to the diseases for which it is recommended. . . . You may possibly conclude that the effect of this arrangement of the booklet with reference to the so-called scientific evidence is to be impressive, rather than really informative."

The balance of the booklet that is said to have been prepared by Dr. Pease purports to explain the genesis of this nostrum and its method of accomplishing the astounding results claimed for it. In this we are told that while there are limits to self-medication, "the public ought to be permitted to decide those limitations for themselves." One is tempted to ask: Does Dr. Pease believe that one should leave to the decision of the lay public the advisability of self-medication in the treatment of tuberculosis, diphtheria, scarlet fever, venereal diseases, and other conditions that not only menace the individual, but menace, also, the community? The medical profession is damned with faint praise in this booklet and the charge is made that physicians are "slow to adopt and use drugs that have valuable therapeutic effects, unless the effects of those drugs are taught in the medical school." The old story is told of how the Peruvians discovered the value of cinchona bark centuries ago and how the Chinese have for generations been aware of the virtues of ma huang, both of which drugs were later to be adopted by scientific medicine. Then we read:

"We are obtaining much information concerning some of the ways in which B. & M. works to do the good which we know from actual and practical use that it has done. We can show some features of it now. Meanwhile, shall we have to wait for centuries—like the doctors did before they prescribed quinine for malaria—until the doctors can prove just how the active principles of B. & M. work, before they will let their patients use it? Some doctors, we are happy to say, are broad-minded enough to use B. & M. now in proper cases."

All the way through the booklet, however, appear evidences of an attempt to lead the public to believe certain things without making definite claims for those things. In fact, the character of the booklet cannot be better described than it was by United States Attorney Sobeloff in his summing up before the jury. Said Mr. Sobeloff: "It is for you gentlemen [the jury] to say whether a man or a company can string together a lot of truths and half-truths, mysteriously, and with a wink in the eye, intimating certain conclusions without stating them, and then come into court and say: 'Nowhere do we use the word "cure".'"

The booklet records that Rollins, the chief owner of B. & M., believes that B. & M. actually penetrates to the seat of tuberculous infection and kills the germs themselves. Then follows this disingenuous statement, presumably by Pease:

"We want to say frankly that we are not now able to prove by scientific and legally competent evidence that this is true. Neither has it been demonstrated to our satisfaction that it is not true."

B. & M. AS A CONSUMPTION CURE

In that part of the booklet giving directions and alleged information on the treatment of lung trouble by B. & M., a booklet, let it be remembered, that was declared under oath to have been prepared or approved by Dr. Pease, we read:

"B. & M. gives great relief after the first few weeks and progress toward recovery is undoubtedly hastened by careful devotion to its free and persistent application according to directions."

Then follows an elementary description of how the tubercle bacillus attacks the lungs and how necessary it is to build up "body resistance." Then:

"We commend all efforts toward such building up of resistance. We believe that the persistent use of B. & M. as recommended gives great aid toward that end . . . It helps to open up those lung areas which may have collapsed and in which the life processes have stagnated, if it can be brought into contact with them."

Later follows specific directions for the treatment of a patient with tuberculosis of the lungs: The patient should lie down and B. & M. should be poured on the chest, throat,

sides and back, over the entire lung area. It should be spread on evenly at least six times at a sitting, and there should be at least two and preferably three daily applications of this kind. The turpentine and ammonia are likely, of course, to produce an eruption, in which case apply "Ex-Rem Ointment" —also put out by the F. E. Rollins Company.

In cases of tuberculosis of the throat, B. & M. should be applied as already directed and frequent inhalations of the stuff also taken, and it may be advisable to use a spray consisting of one part of B. & M. and ten parts of water. Tuberculosis of the cervical glands should be treated by regular free applications of B. & M., and the same methods used in cases of tuberculosis of the joints and other parts of the body.

In pneumonia, B. & M. is to be applied hourly, and the same method is to be used in treating influenza, except that in the latter it is to be applied to the entire trunk of the body.

In whooping cough the "paroxysms are often promptly relieved by frequent applications of B. & M. to the throat and upper chest." In rheumatic fever we are told that "if B. & M. is properly used at the first attack, the infection of the [heart] valves may never occur."

In cases of "blood poisoning," B. & M. is to be spread upon the part infected for twenty or thirty minutes. In acute rheumatism B. & M. will "help to allay inflammation of the joints or muscles," while in the chronic form of this disease "inflammation and pain may be expected to disappear and the joints become more flexible." The cautious injection of the phrase "may be expected" is again indicative of the character of the booklet.

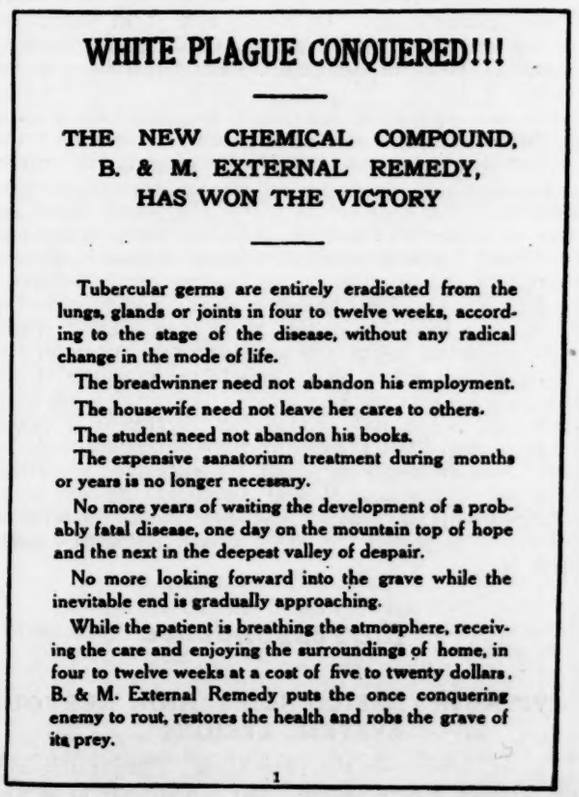
THE FENWICK "RESEARCH"

In addition to money paid to Dr. Pease, Rollins testified that he had had "research" work done in the Long Island Hospital, Boston, under one H. Benson Fenwick of that institution. Fenwick is now dead. The work, according to Rollins, was done on tuberculous patients and Fenwick was paid no less than $80,000 for the work! In some of the booklets issued prior to the "Pease booklet" there were reproduced what purported to be facsimiles of reports by Fenwick. One of these was written—wholly without the knowledge or authority of the institution—on the stationery of the Massachusetts College of Pharmacy and was dated August 20, 1926; another, almost identical in wording, was on Fenwick's own stationery and dated August 1, 1927; still another, also on Fenwick's stationery and nearly identical with the other two, was dated August 1, 1928. President-Attorney Johnson said that the physicians who had done the work with B. & M. at the Long Island Hospital would not testify for B. & M. because they were afraid to. Rollins testified that Fenwick told him that a report of the alleged successful clinical trials of B. & M. at the Long Island Hospital had been prepared and submitted to Dr. Soutter of the hospital, and was to be published in a St. Louis medical journal. Dr. Soutter was later called as a witness by the government and declared that he never heard of B. & M. or of the alleged clinical work for which Rollins paid $80,000.

The sales of B. & M. in 1928 amounted to $140,000, in 1929 to $140,000, in 1930 to $130,000, and in 1931 to $110,000. The net profits in 1926 and 1928 ran as high as $22,000. Rollins' personal salary has varied from $1,200 to $10,000, and since 1924 the concern has paid out nearly $100,000 for alleged scientific investigations and approximately $25,000 for legal expenses. What proportion of these huge sums represents the blood-money of impoverished and deluded consumptives?

During the trial, the B. & M. concern called to the stand a number of lay witnesses who alleged that they had been benefited or cured by the use of the liniment. The government proved, however, that some of these witnesses were still tuberculous and that in some instances the use of the preparation had caused considerable harm to the patient. A testimonial widely used by Rollins, it was shown by the government, had been written by a person who received checks at very definite intervals from the Rollins concern and who finally died of tuberculosis. Rollins himself, when on the stand, attempted to convince the jury that these checks were merely sent out of the goodness of his heart because the person who had given the testimonial was in need of money. The B. & M. concern also called, as one of its many witnesses, a middle-aged man who claimed that while he had been a sufferer from tuberculosis and had treatment in a number of sanitariums without relief, he had been cured several years ago by the use of B. & M. Attorney Sobeloff for the government, however, conclusively proved that this man who had claimed to be cured still had an active tuberculosis and had, in the very recent past, not only submitted a sample of his own sputum to a state sanitarium, but had undergone an x-ray examination which proved the presence of tuberculous lesions in both lungs. In fact, the cases brought in as witnesses at the trial developed essentially the same facts that had been developed by the Bureau of Investigation of the American Medical Association, which had, by correspondence, traced certain B. & M. testimonials to their sources: Namely, those persons who really had tuberculosis and had relied on B. & M. were either dead or still suffered from the disease. Others, who were well, had never had the disease!

Rollins and his associates argued that the word "remedy" has various meanings and that it should be interpreted as anything which would have a curative or alleviative effect in the treatment of disease. He emphasized that he did not use the word "cure." Judge Chesnut, however, in his charge to the jury, cut through the sophistries and instructed the jury that the standard dictionary meaning of the word "remedy," as implying a substance which had substantial worth in the cure of disease, was the one to be adopted.



WHITE PLAGUE CONQUERED!!!

THE NEW CHEMICAL COMPOUND, B. & M. EXTERNAL REMEDY, HAS WON THE VICTORY

Tubercular germs are entirely eradicated from the lungs, glands or joints in four to twelve weeks, according to the stage of the disease, without any radical change in the mode of life.

The breadwinner need not abandon his employment.

The housewife need not leave her cares to others.

The student need not abandon his books.

The expensive sanatorium treatment during months or years is no longer necessary.

No more years of waiting the development of a probably fatal disease, one day on the mountain top of hope and the next in the deepest valley of despair.

No more looking forward into the grave while the inevitable end is gradually approaching.

While the patient is breathing the atmosphere, receiving the care and enjoying the surroundings of home, in four to twelve weeks at a cost of five to twenty dollars, B. & M. External Remedy puts the once conquering enemy to rout, restores the health and robs the grave of its prey.

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Photographic reproduction (reduced) of the first page of one of the earlier "B. & M." booklets published at a time when Rollins had not developed the caution he now exhibits.

Two opinions expressed by the court in his instructions to the jury may be counted on to have a profound influence in the interests of public health and safety. The judge declared that a grave responsibility rests on the shoulders of the manufacturers of medicinal products and he quoted a pronouncement of the United States Supreme Court that persons who make or deal in products alleged to have curative powers are in a position to have, and are expected to have, superior knowledge in connection with the preparation and marketing of such articles. Judge Chesnut also emphasized that merely because a manufacturer asserts his belief in the virtues of his product, that is not to be construed as proof of good faith when the opinion of the manufacturer is opposed by over-

whelming reputable medical testimony to the contrary. Rollins had access to reputable medical opinion in the manufacture and testing of his liniment, but had made no use of it. It is true that he claimed to have paid the Pease Laboratories $15,000 for the work already referred to, and he also testified that he had paid as much as $80,000 to some individuals connected with the Long Island Hospital who were alleged to have assured him by voluminous reports that B. & M. would do the things claimed for it.

That department of the government which is entrusted with the difficult duty of protecting the public from adulterated or misbranded drug products deserves great credit for the thorough and exhaustive way in which it prepared its prosecution of this case. The case itself was a crucial one in the history of the Food and Drugs Act. Upon the decision largely hinged the continued enforcement of the Sherley Amendment. No doubt the forces of evil in the proprietary medicine field have followed the B. & M. case with an interest that has been more than academic. Especial credit in the work of preparing the voluminous evidence is due to Drs. F. J. Cullen and C. E. Holton and Mr. George P. Larrick, all of the Food and Drug Administration, and to Messrs. J. F. Moore and J. B. O'Donnell of the Solicitor's office. Of course, back of all of this work lay the untiring efforts of Mr. W. G. Campbell, Director of Regulatory Work of the United States Department of Agriculture.

The two outstanding features of this case—as viewed by any intelligent student of the American scene—are these: First, the fact that it has been possible for years to sell broadcast to a particularly unfortunate group—the tuberculous—a fantastic fraud that does not have even the plausibility of ignorance in its favor. Yet it was necessary for a department of the United States government to spend thousands of dollars and expend untold effort, to say nothing of the enlisting of the help of many of the leading medical scientists of the country, to get a legal decision that B. & M. is a fraud. Second, is the astounding spectacle of a Fellow of the American Medical Association selling his services to the exploiters of what, to a physician with any knowledge of medicine, is a self-evident fraud; and selling such services for the purpose of enabling the exploiters of this wretched nostrum to continue to do business. And, greatest irony of all, for more than a quarter of a century the American Medical Association has been the one, and practically only, agency that, year in and year out, has endeavored to protect the public against just such frauds as B. & M.

Correspondence

"VITAMIN DEFICIENCIES AND NERVOUS SYSTEM LESIONS"

To the Editor:—In the editorial on "Vitamin Deficiencies and Nervous System Lesions," July 9, you quote an article of ours as attributing softenings in the cerebellum of chicks to a lack of vitamin E. Reference to our papers "A Cerebellar Disorder in Chicks, Apparently of Nutritional Origin" (*J. Exper. Med.* **53**:11 [Jan.] 1931) and "Nutritional Encephalomalacia in Chicks" (Transactions of the American Society for Experimental Pathology, April, 1931, *Arch. Path.* **12**:134 [July] 1931) will show that we have not ascribed these cerebral degenerations to a lack of vitamin E. The statement in the editorial may have been quoted from the article of Zimmerman and Burack (*Arch. Path.* **13**:229 [Feb.] 1932). These authors erroneously cite us as attributing these lesions to a lack of vitamin E.

Although the exact factor in the production of nutritional encephalomalacia of chicks has not been worked out, we have abundant unpublished evidence that wheat germ oil and other rich sources of vitamin E do not protect against the disease. Our experiments also exclude vitamin G as a possible factor.

ALWIN M. PAPPENHEIMER, M.D.,
MARIANNE GOETTSCH, PH.D.,
New York.

DIAGNOSTIC SIGN FOR PLEURAL FLUID

To the Editor:—I am not aware that the following sign for the detection of fluid in the pleural sacs has been described heretofore, nor can I find any reference of it in standard works on physical diagnosis or in other medical treatises. In my hands it has proved to be a rapid, easy and useful sign by which to determine the presence of fluid of sufficient amount to be detected by ordinary methods of percussion.

Nellis B. Foster wrote: "Physical signs over fluid are variable to an extreme, and there is no combination of them which invariably indicates fluid."

If the abdominal cavity contains fluid (over 800 cc.), simple tapping of one flank with the fingers will produce vibrations or succussions on the opposite side to the palpating fingers of the other hand. This procedure is as old as any other in physical diagnosis.

If the fluid in the pleural sac is above a trifling amount (400 cc.), percussing the area over it posteriorly with the slightly flexed fingers will cause repercussions or vibrations to be felt easily by the fingers of the other hand pressed against the lumbar muscles on the same side, about the level of the third lumbar vertebra. If both sacs contain fluid, waves produced on one side will not be transmitted to the other side. They will not cross the mediastinum. If the sac on one side is so distended with fluid that it is pushed over to the other side of the spine, producing the paravertebral triangle of dulness (Grocco's sign) percussing the fluid on the suspected side will produce vibrations in the triangular area. If the chest wall is bulged by an excess of fluid, the phenomenon is more marked because of the increased tension of the liquid, and repercussions will be detected like those felt on a drum head.

In case of consolidation, as in pneumonia, without the effusion of fluid, percussion over the posterior walls of the chest (over the area of dulness) will not bring about these vibrations. The test seems to be a good differential sign between liquid and consolidated lung. The test must be performed with the patient sitting upright in order that the dependent fluid may be spread over the diaphragm. In examining patients with fluid in the pleura above the width of four ribs, I found my observations in twenty cases confirmed by aspiration or roentgen examination as well as other well known signs.

The weight of the fluid in the pleural sac has much to do with the tension of the diaphragm, sitting upright increases this because the fluid is distributed widely over the diaphragm. These vibrations felt over the quadratus lumborum are sharp, rapid in the presence of fluid and constitute a marked tremor. This weighted diaphragm, if the patient is sitting upright and leaning forward, will produce vibrations in the quadratus of the opposite side, because, very often the collection of fluid is so massive that the diaphragm, so vibrating, excites both quadrati. From the diaphragm the vibrations are transmitted to the last rib, one of its insertions is to this member, through the arcuate ligaments. The upper insertion of the quadratus is to the last rib. This muscle is without doubt an accessory muscle of respiration. If the reader will but feel his quadratus muscle he will mark it contracts violently when he coughs hard. It serves as a fixator to the diaphragm and can be looked upon as an extension of this member outside of the torso. Upon these anatomical facts the method depends. The erector spinae muscle in the thorax, if percussed, will often excite contractions in its lumbar portion; these contractions must not be confused with the vibratory tremor induced by percussed fluid. The quadratus is made tense if the patient leans forward, it does not contract but vibrates when the chest is percussed. Leaning forward puts this muscle on the stretch, increases its tonus to the tension of a bow string. This position is important. A stretched piece of parchment would vibrate if it was in the place of the muscle. In heavily muscled men, sometimes the quadratus will exhibit slow heavy waves when the chest is palpated under the above conditions. Palpat-

ing the quadratus when the chest is percussed in the presence of fluid is the best way to distinguish these two kinds of vibratory phenomena. The waves are probably magnified in the quadratus because the long diaphragm and quadratus make leverage effect when the chest is percussed. The last rib serves as fulcrum. Then, too, hydraulic phenomena have much to do with the magnification.

The upper level of the fluid may be determined by this method. If one percusses over fluid beginning at the top percussing downward, and palpating the muscle at the same time, the vibrations will begin to be felt when this level is reached. This method seems to be reliable in denoting this. With a cannula in the chest fluid proving its presence, I found that by lowering the level from a previously determined top by evacuating 30 cc. the fluid diminished the width of two vertebrae, noted again by percussing the chest and palpating the quadratus. The method not only will locate the extent of the effusion but will detect it as well. In this case the film of fluid between the ribs and the lung must have been very thin, because 30 cc. covered the entire width of the lung. It appears from this observation that the method will prove the presence of very small amounts of fluid.

ROBERT L. PITFIELD, M.D., Germantown, Pa.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SKIN GRAFTING AFTER BURN

To the Editor:—I have a patient who was badly burned in January as the result of an attendant's carelessness in applying an electric pad to her paralyzed right leg. The skin has healed, but there is still an exposed surface of the tibia measuring about 1½ inches by 1 inch. The periosteum was destroyed in this area by the burn, but the exposed bone appears perfectly healthy. The open area is undoubtedly growing smaller, but at such a slow rate that it may take another year for it to close up. I can find no information in my own library concerning the best method of treatment. Will you please tell me what is now considered the best way to treat this condition?

J. L. RAINS, M.D., Seattle.

ANSWER.—Lesions of the leg tend to heal slowly, especially when the circulation is impaired by a paralysis. Conservative methods are probably useless, although the ulcer area might be kept covered with narrow strips of adhesive plaster, changed every three or four days. If no healing should result within a few weeks, operation would be indicated. If there is a layer of granulation tissue, it should be freshened with a knife or a curet and Thiersch grafts put on. If the surface of the bone is present in the wound there is probably a thin cortical sequestrum of dead bone. This should be chiseled off and, after granulations have formed, Thiersch grafts may be placed on this area. This might heal under adhesive strapping, although it is preferable to cover such areas with skin grafts.

ENDAMEBA COUNCILMANIA LAFLEURI

To the Editor:—In Todd and Sanford's "Clinical Diagnosis by Laboratory Methods," edition 6, page 57, section 5, in the paragraph heading "Other Endamebae," the following statement is made: "Under the name Councilmania lafleuri, Kofoid and Swezy recently described an exceptionally actively motile endameba which ingests red blood corpuscles and is probably pathogenic. Its cysts are very thick walled, ovoid, 16 to 20 microns in diameter, and contain eight nuclei. It is not accepted by all protozoologists." Will you please inform me as to the present status and pathogenicity of this organism? Please omit name.

M.D., New Mexico.

ANSWER.—In 1921, Kofoid and Swezy described Councilmania lafleuri as a new ameba of the human intestine (University of California Publications on Zoology **20**:169). In 1922 Gunn (*J. Parasitology* **9**:24 [Sept.] 1922) recounted studies which he felt disproved the assertion that this form was actually new. In 1924, Kofoid, Swezy and Kessel (University of California Publications on Zoology **26**:21) gave further data in support of their view. In April, 1926, Wenyon discussed the question in extenso in his monograph on Protozoology (p. 221) and concluded thus: "The writer still believes that there is no justification for the genus Councilmania and that the characters which distinguish C. lafleuri from Endamoeba coli fall within the range of variation of E. coli itself." Several brief papers since that date have offered support for each side of the question, but no thorough study has been made. In Problems and Methods of Research in Protozoology by Hegner and Andrews (New York, Macmillan Company, 1930), the problem is not even mentioned. One contributor uses the name, another avoids using it. The question is certainly still *sub judice*. Until further evidence is secured, both the name and its rôle in the human body cannot be settled.

PERSISTENT FURUNCULOSIS

To the Editor:—I have under my care a woman, aged 33, who has suffered from furunculosis for the past seven months. The past history, except for iridocyclitis in the left eye twenty years ago, is negative. About thirteen months ago she gave birth to a normal girl and was nursing the child for nine months. It happened during the last lactating months that she developed the furunculosis, especially on the trunk under the breasts and on the lower extremities. The face and neck were spared. The furuncles developed into considerable sized abscesses, painful, discharging thick but not abundant pus, and leaving disfiguring scars. There are usually two abscesses appearing at the same time. Her physical condition is negative. During the onset of the furunculosis she was overweight, but she has lost considerable weight since and become anemic, the hemoglobin being 68 per cent. The urine shows a slight trace of sugar. The blood sugar (65 mg. per hundred cubic centimeters) and chemistry are normal. The Wassermann reaction is negative. Blood culture did not reveal any abnormality. I tried vaccine, foreign protein treatment, roborant tonic, sulphonated bitumen ointments, sulphur baths, ultraviolet rays, dietetic treatment to eliminate the traces of sugar (lactose), and arsenic (solarson) injections. Liver therapy is being tried to increase the hemoglobin and improve the secondary anemia. But there seems not to be any sign of abatement of this condition. Please suggest any further treatment. Do you approve injections of the patient's own blood? Please omit name and address.

M.D., New York.

ANSWER.—Evidently this case of furunculosis presents unusual difficulties. The measures previously instituted will usually control an ordinary furunculosis. Since the patient's general physical condition is satisfactory, the persistence of the eruption cannot readily be explained on the basis of a debilitating systemic disease. The subsequent development of abscesses with disfiguring scarring suggests skin lesions other than ordinary furuncles. If it has not been done, studies by smear, culture, and animal inoculation should be made for the bacillus of tuberculosis and the mycotic infections. It is possible that a biopsy might clinch the diagnosis. If the lesions are, however, the ordinary furuncles, the patient should be carefully instructed not to manipulate them. Sulphur baths and small doses of foreign protein should be continued over a considerable period. There can be no objection to giving four or five injections of the patient's own blood parenterally. The carbohydrate intake should be kept at a low level.

PRURITUS IN DIABETIC PATIENT

To the Editor:—I have a diabetic patient, aged 63, who is suffering from intractable generalized itching of the skin. The diabetes is well controlled by diet and insulin, so that sugar appears in the urine only occasionally. I have tried various lotions with only temporary relief. He sleeps fairly well, and during the night the itching subsides somewhat. Sedatives have been tried but do little good. At present I am giving him calcium gluconate, 20 grains (1.3 Gm.) daily. Can you suggest any treatment that might give more or less permanent relief? Please omit name and address.

M.D., Illinois.

ANSWER.—Generalized itching of the skin in elderly persons with diabetes is comparatively rare and is sometimes exceedingly difficult to control. As far as treatment is concerned, the usual procedures, such as calamine lotion, keeping the skin well oiled, may be of no avail, in which case therapeutic x-rays may be tried. There are two suggestions that may be made: (1) to see whether the treatment of the patient with a lower diet and no insulin might be of some effect, and (2) to have a basal metabolism test done. If the test shows a minus rate, thyroid in therapeutic doses at times alleviates itching.

POTASSIUM SALTS AS CARDIAC REGULATOR

To the Editor:—Kindly note the following newspaper clipping about potassium salts as a cardiac regulator, reported by Dr. John J. Sampson at the A. M. A. Session in New Orleans: "Certain potassium salts correct irregular heart beats and slow down too rapid heart action, according to John J. Sampson, M.D., of San Francisco. He said it is found this form of potassium can be taken safely by mouth. Its effects begin in thirty to fifty minutes, and last six to eight hours." I should like to get the preparation and the dose.

H. J. FRIEDMAN, M.D., San Antonio, Texas.

ANSWER.—Doses of from 2 to 4 Gm. of potassium acetate, in 25 per cent aqueous solution, were given every six to eight hours.

PERSISTENT URTICARIA

To the Editor:—I am being tormented by a persistent urticaria, at times and locations with the usual wheals, when scratched, but also with widespread local pruritus, chiefly at night. Frequently I pass most of the day in comfort, with occasional local irritation. I have checked up all skin tests for every food used, none giving a positive reaction. But anyway, I have for a week at a time eliminated from my diet anything that I thought might be at fault — milk, wheat, eggs, sugar. There is not a trace of sugar in the urine, and the sugar in the blood is about normal. I have taken a good saline purgative, with subsequent restriction of diet to fruits and vegetables and alkalis to the point of neutralizing the urine. I have checked up all possible sources of local irritation, such as bath and laundry soaps and bathroom powder, even leaving off my daily bath for a week. I am 65 years old, 150 pounds (68 Kg.) in weight, and I think, a normal human being. I have plenty of outdoor interests and exercises, am of regular habits, use no tobacco or stimulants, sleep on an open porch, go to bed at nine, arise at six, and do nothing to which I could judge that a nervous element could be contributing. If you can suggest anything it would be most gratefully received. I have just noticed an abstract in THE JOURNAL of May 7, page 1692. Could you say anything along this line? If so, kindly designate method and dosage for use and where the sodium dehydrocholate is obtainable. Please omit name and city. M.D., Louisiana.

ANSWER.—The treatment of chronic urticaria has not been as satisfactory as that of bronchial asthma and hay fever, yet good results are frequently obtained. The condition is usually due to a food, but some cases are caused by contact with something that irritates the patient. This may be some substance such as silk or wool or something in the bedroom; e. g., a hair mattress or a feather pillow. These factors should be thought of and removed. Protein sensitization tests coupled with food elimination diets are often successful in pointing out the cause. If all these fail, and they often do, one resorts to nonspecific methods of treatment. One of these is the use of bile salts. No doubt all bile salts act more or less similarly. Sodium choleate (sodium choleinate), Merck, is dried purified ox-gall; it is claimed to contain, for the most part, sodium salts of glycocholic and taurocholic acids, along with some cholesterol, choline and lecithin. The dosage is from 0.3 to 0.6 Gm. (5 to 10 grains). Sodium dehydrocholate is marketed as Decholin Sodium (New and Nonofficial Remedies, THE JOURNAL, March 12, p. 887).

REACTION TO DRUGS

To the Editor:—A patient who has influenza with coryza has taken acetylsalicylic acid for one day, beginning the following day with a different brand, in the usual dosage, for three days. An added cold was taken and the patient then took amidopyrine for several days, one tablet every four hours, or one 5-grain tablet every four, six or eight hours as symptoms indicated. After about four days a papular rash appeared on the flexor surfaces of the arms and back, somewhat on the abdomen, legs, neck and chest, and somewhat less on the back, arms and legs. Itching was not so noticeable at first as it was after a day or so. The patient also was taking a nasal spray of ephedrine (Swan-Myers Company). It developed that a sinus condition was present that was not draining well. All medicines have been stopped. Elimination, bowels, skin and kidneys are all active, with fluid increased. The patient cannot sleep. Just what may be given safely in order not to increase the skin irritation and to induce sleep? Please omit name. M.D., Iowa.

ANSWER.—In case the eruption described is due to one of the medicines that he has been employing, it is probable that the patient would be able to take any of the standard sedatives without danger of increasing the eruption, since the sensitivity may exist for only a single drug. In case the eruption seemed to be increased on taking one of these synthetic sedatives, this should be discontinued and bromides might be employed. It is impossible to suggest any single agent to which some individuals might not react.

PYELITIS AFTER OTITIS MEDIA

To the Editor:—What would you consider the best treatment in the following cases: About twelve weeks ago I did a paracentesis in four cases of acute purulent otitis media in children between the ages of 8 and 10. They all presented pyelitis with numerous pus cells and some erythrocytes, a few hyaline and granular casts, and acid reaction. The ear conditions cleared up entirely, but in all cases the urine remained unchanged despite protein and salt-free diet, general care, ultraviolet irradiations and ingestions of Pyridium. Please omit name.

M.D., New York.

ANSWER.—The most important thing is to determine whether the children are suffering from a pyuria of bacterial origin or whether they are still suffering from a postinfectious hemorrhagic nephritis. A culture of the catheterized urine will rule out the former and a careful examination of the urinary sediment as well as tests for albumin and examination of the blood urea will determine the latter. The treatment will depend on the diagnosis. If a pyelitis, the administration of methenamine after acidifying the urine with ammonium chloride, 1 Gm. four times a day, should clear up the infection rapidly if there is no urinary anomaly. Treatment of the nephritis will depend on the condition found. Pyridium has not been established as useful in infections of the urinary tract.

MULBERRY TREE AS SOURCE OF SENSITIZATION

To the Editor:—Can you inform me or direct me where I can find out whether mulberry trees are poisonous: leaves, bark or roots of the black and white mulberry trees? What I should like to know is whether they could poison by direct contact or produce an allergy resulting in an allergic dermatitis. There is no mention made of this in any of my books, and my druggist says that his books do not mention that they are poisonous. H. W. EBY, M.D., Goshen, Ind.

ANSWER.—A search of the literature failed to reveal any mention of skin trouble from contact with mulberry trees. There are listed ten species of mulberry trees (Morus), four of which occur in the United States. The paper mulberry (Papyrius papyrifera Kuntze) has recently been definitely shown by Bernton (*J. Lab. & Clin. Med.* **13**:829 [June] 1928) and by Balyeat and Rinkel (*J. Allergy* **3**:7 [Nov.] 1931) to be an important cause of hay fever and asthma. It pollenates is April and May and it is a common tree in the eastern and southern parts of the United States. Its pollen is highly toxic. From what is known of other pollen, such as ragweed and grass, the pollen of the paper mulberry tree might well cause skin disease.

STATISTICS OF DISEASES OF THE EYE

To the Editor:—I am anxious to get statistics as to the percentage of people in the United States who have squint, progressive myopia and glaucoma. Have you this information available, or do you know where I might be able to get it?

GORDON H. GLIDDON, Hanover, N. H.

ANSWER.—There are no statistics available to answer these questions. Statistics from some of the various well organized clinics as well as statistics from private practice can show the percentage of squint, progressive myopia and glaucoma as they occur among the patients who visit that clinic or private practice; but this bears no relationship to the population as a whole. Even in a country as statistically minded as is Germany, such figures are mostly guesswork.

PUPILLARY REACTIONS IN PERNICIOUS ANEMIA

To the Editor:—Does paralysis to both light and in accommodation of the eyes occur in pernicious anemia? I can find where optic atrophy and hemorrhages into the retina occur, but no mention of the loss of the reflexes mentioned. J. D. BUTZNER, M.D., Scranton, Pa.

ANSWER.—In a few cases of pernicious anemia, the pupils have been found to be moderately dilated, although reacting promptly to light and in accommodation. As far as can be found from a search of the literature no specific pupillary paresis has been described, although in some cases there have been pupillary disturbances secondary to the extensive hemorrhages in the retina and optic nerve. As a rule the main ocular changes in pernicious anemia are to be found in the background of the eyes.

RECTAL ETHER ANESTHESIA

To the Editor:—In Queries and Minor Notes (THE JOURNAL, May 28) the question is asked whether "rectal ether anesthesia (Gwathmey method) is contraindicated in infections of the respiratory tract because of the danger of ether pneumonia during the period of elimination." This question is rightly but not completely answered as it might be when it is stated that there is doubt whether it is sufficiently concentrated in rectal analgesia to affect the lungs. The amount usually given in rectal anesthesia is 2½ ounces (75 cc.) of ether. It escapes from the lungs at the rate of 1¼ drachms (4.65 cc.) every five minutes. It is moistened and warmed by the time it reaches the lung. I have never known of a pneumonia to follow ether when given by rectum, in three or four times the amount given in obstetric cases.

A few years ago, in association with other physicians, I gave a tuberculous patient 2 ounces (60 cc.) of ether and 1 ounce (30 cc.) of oil by rectum three times a week for more than four months with the hopes of affecting his disease favorably. While the patient stated that he felt better after each treatment, his chart showed no improvement in any way, and the method was abandoned. Later I gave by rectum to a patient with an enlarged tongue 5 ounces (150 cc.) of ether and 2½ ounces (75 cc.) of oil for the surgical removal of the obstruction. The patient's sputum was changed from a positive to a negative culture, but unfortunately he disappeared from the hospital as soon as his tongue was healed. There are references in medical literature for a theoretical basis for the treatment of tuberculosis of the lung by ether. From a large clinical experience, I can state positively that ether is not contraindicated in obstetric cases when given by rectum, regardless of whether the lesion is active or quiescent.

All authorities are agreed that ether is contraindicated by inhalation in any stage of tuberculosis. JAMES T. GWATHMEY, M.D., New York.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS: Montreal, Sept. 19. Sec., Dr. William H. Wilder, 122 S. Michigan Ave., Chicago.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: The examination will be held in nineteen different cities in the United States and Canada, Oct. 22. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OTOLARYNGOLOGY: Montreal, Sept. 17. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

CALIFORNIA: *Reciprocity.* Los Angeles and San Francisco, Sept. 21. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

NATIONAL BOARD OF MEDICAL EXAMINERS: The examinations in Parts I and II will be held at all centers where there are five or more candidates available in a Class A medical school, Sept. 14-16. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

NEW HAMPSHIRE: Concord, Sept. 8-9. Sec., Dr. Charles Duncan, Concord.

NEW YORK: Albany, Buffalo, New York and Syracuse, Sept. 19-22. Chief, Professional Examinations Bureau, Mr. Herbert J. Hamilton, 315 State Education Bldg., Albany.

OKLAHOMA: Oklahoma City, Sept. 13-14. Sec., Dr. J. M. Byrum, Shawnee.

PORTO RICO: San Juan, Sept. 6. Sec., Dr. O. Costa Mandry, Hospital Mimiya, Santurce, San Juan.

WISCONSIN: *Reciprocity.* Milwaukee, Sept. 13. Sec., Dr. Robert E. Flynn, 315 State Bank Bldg., LaCrosse.

Connecticut March Report

Dr. Thomas P. Murdock, secretary, Connecticut Medical Examining Board, reports the written examination held in Hartford, March 8-9, 1932. The examination covered 9 subjects and included 70 questions. An average of 75 per cent was required to pass. Sixteen candidates were examined, 13 of whom passed and 3 failed. Eleven physicians were licensed by endorsement. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Yale University School of Medicine	(1928) 83.5,	(1931)	84.9
Georgetown University School of Medicine		(1931) 75,	75.5
George Washington University School of Medicine		(1931)	78.6
Boston University School of Medicine		(1931) 75,	79.6
Harvard University Medical School	(1924) 83.8,	(1926)	76.4
Tufts College Medical School		(1930)	81.1
University of Vermont College of Medicine		(1931)	78.3
McGill University Faculty of Medicine		(1928)	89.6
Osteopath*			78

College	FAILED	Year Grad.	Per Cent
George Washington University School of Medicine		(1930)	72.2
University of Naples Faculty of Medicine and Surgery		(1923)	68.5
Osteopath †			73

College	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Yale University School of Med.	(1928) Maryland,	(1929)	N. B. M. Ex.
Emory University School of Medicine		(1921)	New York
Johns Hopkins University School of Medicine		(1925)	N. B. M. Ex., (1928) Maryland
Harvard University Medical School		(1926)	N. B. M. Ex.
Washington University School of Medicine		(1927)	Virginia
Columbia University College of Phys. and Surgs.		(1920)	New York
Ohio State University College of Medicine		(1916)	Ohio
University of Texas School of Medicine		(1921)	Texas
University of Toronto Faculty of Medicine		(1929)	N. B. M. Ex.

* Licensed to practice surgery.
† Examined in medicine and surgery.

Florida June Report

Dr. William M. Rowlett, secretary, Florida State Board of Medical Examiners, reports the examination held at Tampa, June 13-14, 1932. The examination covered 10 subjects. An average of 75 per cent was required to pass. Forty candidates were examined, 37 of whom passed and 3 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
University of Arkansas School of Medicine		(1931)	80.9
Atlanta Medical College		(1916)	77.8
Emory University School of Medicine	(1932) 83.5, 85, 86,		87.1
Southern College of Medicine and Surgery		(1913)	76.3
University of Georgia Medical Department	(1913) 75,	(1928)	84.8
Loyola University School of Medicine		(1932)	88.8
Indiana University School of Medicine		(1931)	83.8
University of Indianapolis Medical Department		(1897)	78.6
Kentucky University Medical Department		(1904)	75.3
University of Louisville School of Medicine		(1930)	87.4, (1931) 84.4
Tulane University of Louisiana Medical Department		(1910)	79.2
Tulane University of Louisiana School of Medicine		(1929)	82.6, (1932) 83.6, 86.7, 87.3
Johns Hopkins University School of Medicine		(1928)	86.9
University of Maryland School of Medicine and College of Physicians and Surgeons		(1929)	91.1
Harvard University Medical School		(1932)	86.1
University of Michigan Medical School		(1931)	86.5
St. Louis University School of Medicine		(1930)	84.9
Syracuse University College of Medicine		(1932)	84.7
University of Cincinnati College of Medicine		(1916)	77.2
Hahnemann Medical Coll. and Hosp. of Philadelphia		(1926)	84.9
Woman's Medical College of Pennsylvania		(1930)	87.4
Meharry Medical College	(1931) 80.1,	(1932)	81.4
University of Tennessee College of Med.	(1931) 83.9,	(1932)	85.4
Baylor University College of Medicine	(1930) 82,	(1932)	84.1
University of Toronto Faculty of Medicine		(1924)	82.4
University of Havana Faculty of Med. and Pharm.		(1928)*	77.7

College	FAILED	Year Grad.	Per Cent
Chicago Homeopathic Medical College		(1889)	71.5
Detroit College of Medicine		(1904)	70
University of Tennessee Medical Department		(1904)	54.7

* Verification of graduation in process.

Book Notices

Surgical Pathology of Prostatic Obstructions. By Alexander Randall, M.A., M.D., Professor of Urology, University of Pennsylvania. Cloth. Price, $7. Pp. 266, with 100 illustrations. Baltimore: Williams & Wilkins Company, 1931.

This book represents an analysis of various types of gross prostatic pathologic changes extending over a period of ten years at the Philadelphia General Hospital. Out of a total of 1,215 necropsies, 312 cases, or 25.6 per cent, of gross pathologic changes were found, of which 65 per cent were in white persons and 35 per cent in Negroes. Since numerous investigators have contributed much toward the microscopic side of prostatic pathology, in this treatise the author had only the questionable specimens studied microscopically. Hypertrophy, median bar, carcinoma and abscess were especially studied in regard to their incidence, characteristics, relation to age, clinical conditions, race, and the best type of surgical procedure to be carried out. The book is divided into six chapters. The illustrations show the various characteristic types of prostatic pathologic lesions. Benign prostatic hypertrophy was found to be the most common lesion, with true fibrous median bar second, while carcinoma and abscess were less common. The first part of the book shows the incidence of the different types of prostatic disease. Each lesion is illustrated by plates showing the different gradations of each type with a history of the case followed by a gross pathologic description. Results of microscopic examination were included when there was any doubt as to the diagnosis. Evidence of a malignant condition appeared in 7.1 per cent of the entire study, and in the majority both lateral lobes were involved while the posterior lobe remained free. This is important, as the general belief is that the posterior lobe is most commonly involved first in carcinoma of the prostate.

The book, with its histories of the cases presented, the discussion, and the charts and plates, gives the urologist a work of unprecedented value.

Initiation aux examens courants de la gorge, du nez et des oreilles. Par Henri-Pierre Chatellier, oto-rhino-laryngologiste des Hôpitaux de Paris. Préface de L. Baldenweck. Paper. Price, 50 francs. Pp. 323, with 152 illustrations. Paris: Masson & Cie, 1932.

After some general advice regarding the proper attitude toward patients, the author suggests some principles of examination of the throat and the larynx. With reference to the latter, the various types of indirect as well as direct methods are discussed. This is followed by two chapters on rhinoscopy both anterior and posterior. Considerable attention is given to the examination of the sinuses and the method of puncturing the antrum of Highmore. Examination of and methods of inflation of the eustachian tube are the subjects next discussed. This is followed by a general description of the methods of examination of the ear, with reference in particular to the external parts. The function of the internal ear is then discussed from the standpoint of the examination of audition, followed by vestibular tests. The usual tuning fork tests are mentioned as well as the use of the monochord. Examination of the vestibular apparatus is entered into with considerable

detail. Throughout the work the author is careful to call attention to the exact technic that is used in the examination and shows by means of illustrations drawn by himself the anatomy of the various parts described and the method of manipulating the patient in making the various tests. The work will be of definite value to the advanced student in medical schools, the general practitioner who has to make some of the elementary examination of the ear, nose and throat, and last, but not least, the man about to take up the specialty of otolaryngology.

Directory of Psychiatric Clinics in the United States. Compiled and edited by the Division on Community Clinics of the National Committee for Mental Hygiene. Paper. Price, $1. Pp. 165. New York: Commonwealth Fund, 1932.

The growth of the child guidance movement is clearly indicated by a comparison of this volume with the earlier editions published in 1925 and 1928. The number of clinics listed is:

1925	318
1928	492
1931	674

The great increase during the last three year interval is due in part to the inclusion of psychiatric clinics for adults in the latest edition; but as there are only fifty in this group, the net increase of clinics serving children is approximately 130. Of the 674 clinics in the country, 232, just over a third, provide the complete service of psychiatrist, psychologist and psychiatric social worker. The new edition, which is believed to be complete, represents a canvass of the entire country. Not only psychiatric clinics but also neurologic clinics, so called, were included when they were found to offer, in reality, psychiatric service. No attempt has been made to evaluate the clinics, but the directory indicates clearly the type of organization and the scope of each.

Thérapeutique médicale. III: Foie, glandes endocrines et nutrition. Par Maurice Loeper, professeur de thérapeutique à la Faculté de médecine de Paris. Avec la collaboration du Dr. André Lemaire, chef de laboratoire à la Faculté. Paper. Price, 50 francs. Pp. 377, with 58 illustrations. Paris: Masson & Cie, 1931.

The French physician needs no therapeutic consultant. Apparently his library must keep freshly littered with the simply amazing number of therapeutic monographs on every subject and subhead foisted on their medical fraternity in a continuous outpouring. Every volume advertises a future series. One must shruggingly conclude that these postgraduate manuals fill the need of the French practitioner; otherwise, the publisher would find no market. This volume of a series on medical therapeutics treats of nutrition generally and of disorders of the liver and endocrine glands. It includes chapters on gout, obesity, chronic rheumatism, phosphorus, calcium and vitamins, and a concluding chapter on urinary excretion. Nothing is taken for granted. Predigestibility, simplicity and availability of the contents are served by a detailed summary at the beginning and a list of prescriptions at the end of each chapter. Schematic histology and graphs illustrating the mode of drug action add to the clarity of the book. The material is concise and represents a practical summary. The chapter on general physiology of digestion is especially interesting. The author scores in medical literature by referring to the glands of internal secretion as the carburetors of the body economy. It may be too critical to indicate that some recent developments in this field have not been emphasized; namely, cortin, the rôle of the female sex hormone in the treatment of hemophilia, and the effect of pituitary extracts on the growth of hair.

A Study of Dental Clinics in the United States: 1930. By Miriam Simons Leuck, of the Research Staff of the Committee on the Study of Dental Practice of the American Dental Association. Statistical Adviser: Charles A. R. Wardwell, Assistant Professor of Statistics and Finance, Northwestern University. Publications of the Committee on the Study of Dental Practice of the American Dental Association, No. 3. Paper. Pp. 107. Chicago: University of Chicago Press, 1932.

Various studies have been made of dental clinics and their relations to specific localities or individual clinics, but it appears that this study is the first attempt to assemble widespread information. Under the study are included such topics as the number of clinics, their geographic distribution, number of patients served, number of visits made by patients to clinics, the amount of fundamental equipment devoted to clinic work, and the number of dentists engaged in this type of service. There is found also a classification of the types of clientele served. Of considerable importance in understanding the scope of interest in dental care that has spread outside the dental profession is an enumeration and discussion of the agencies that direct dental clinics.

In this study, reports were made on 1,530 clinics. This number included at least one from every state in the United States, with an average of over two clinics for each city reporting. In 1930 the reports showed that at least 1,962,791 patients were treated in dental clinics. The extent of dental clinic service is further shown by the fact that 3,314 chairs are reported as being devoted to this service. It was stated that 28 individuals out of every 1,000 living in cities received dental clinic treatment during 1930, the year covered by the study. The smallest of these clinics served only 4 to 10 patients during the year, but several reported an attendance of over 75,000 patients and one clinic reported a service to 110,000 in 1930.

The relative importance of the different classes of agencies conducting dental clinics is shown by the following figures: The number of clinics conducted by local and county governments is 469; by hospitals, 378; by federal and state governments, 270; by lay and charitable organizations, 200; by dental schools and societies, 137; and by industries and business firms, 76. Information is not complete on the number of dentists connected with the full number of 1,530 clinics reporting; however, some 400 or more clinics volunteered information on this point. In these clinics there were reported 207 full time dentists, 515 part time dentists, and 11 dental interns. Almost half of the clinics (48 per cent) confined their work exclusively to children. Over 16 per cent reported that their service was maintained for adults only, while over 33 per cent maintained a service for both adults and children. The patients, classified according to age, consisted of 1,006,918, or over 62 per cent, children and 596,956, or more than 37 per cent, of adults. It was impossible in the study to make a detailed analysis of the services rendered, the class of patients admitted, charges made and the salaries paid the operator. These items, together with the social problems involved, are to be presented in a report of a further study.

The study is accompanied by a number of significant tables in both the text and the appendixes. Although it appears that the author anticipates a more extensive report, the material presented is sufficient to show that there exists in the United States today a widespread interest in dental clinics both among the members of the dental profession and among organizations interested in public health. There is likewise an evidence of interest on the part of the public, which is shown by the extent to which these clinic facilities have been utilized.

Pathologie und Therapie der Erkrankungen des Kehlkopfes, der Luftröhre und der Bronchien. Von Prof. Dr. M. Hajek, Vorstand der Universitätsklinik für Kehlkopf-, Nasen- und Ohrenkrankheiten in Wien. Abteilung 1. Paper. Price, 53 marks. Pp. 192, with illustrations. Leipzig: Curt Kabitzsch, 1932.

This is the first section of what promises to be a complete treatise on the pathology and treatment of the diseases of the larynx, trachea and bronchial system, and it deals with these subjects in a beautiful manner. In the first chapter, the anatomy of the larynx, trachea and bronchial tubes is discussed, followed by the second chapter on the physiology of the larynx and airways. The third chapter deals with the various methods of indirect and direct examination (endoscopy), with much attention to the proper instrumentation. The fourth chapter presents the pathology of the upper air passages, including anemia, acute and chronic catarrhal inflammation of the laryngeal, tracheal and faucial mucosa, laryngeal edema, acute laryngitis and perichondritis. There is a good discussion of some of the acute infectious diseases which involve the larynx and the air passages, including such diseases as scarlatina, measles, smallpox and diphtheria. The volume ends abruptly in the middle of a sentence in the portion in which diphtheria is being discussed. It is hoped that the other two sections of this subject will soon appear, so that the complete story can be presented. The part thus far published is well illustrated with black as well as colored drawings and figures. This work should prove most valuable to the library of the laryngologist, especially to the man interested in endoscopy in all its phases.

A Practice of Medicine. By Prof. Adolf Strümpell. Volume I: Infectious Diseases. Diseases of the Respiratory and Circulatory Systems. Volume II: Diseases of the Digestive and Urinary Systems. Diseases of the Organs of Motion. Diseases of Metabolism. Volume III: Diseases of the Nervous System. Authorised translation from the thirtieth German edition by C. F. Marshall, M.Sc., M.D., F.R.C.S., and C. M. Ottley, M.A., B.M., F.R.C.S. Twenty-ninth and thirtieth editions by E. Seyfarth, D.Méd. et Phil., Professor of Medicine at the University of Leipzig. Fabrikold. Price, $33 per set. Pp. 2356, with 392 illustrations. Philadelphia: F. A. Davis Company, 1931.

Since this work was first published, in 1883, it has been in constant demand and has been translanted into seven different languages. At the death of the author, in 1925, Professor Seyfarth of Leipzig undertook the revision of the book. He has maintained the original arrangement of the text as well as the emphasis on the clinical aspect of disease. Strümpell was prominent as a clinician and throughout his previous editions he emphasized the importance of clinical study and observation and the correlation of external symptoms with internal pathologic conditions. In this edition Dr. Seyfarth has attempted to maintain the ideals of Strümpell and has not overstepped the limits of a practical textbook of medicine. Many new therapeutic and diagnostic measures have been introduced since the last edition of the book, but the author has included only those which he himself has tested and found useful. The first volume consists of chapters on the acute infectious diseases, special infectious diseases, and diseases of the cardiovascular and respiratory systems. In keeping with the thought expressed by the author in the preface, he has not included any form of treatment unless its usefulness has been firmly established. The definite success that has attended the use of diphtheria toxoid in the prophylaxis of diphtheria merits more than casual mention, however. In the chapters on diseases of the respiratory and cardiovascular system, the clinical aspect is clearly and concisely correlated with the underlying pathologic condition wherever possible. The second volume is devoted to diseases of the digestive and urinary systems, blood, endocrine glands and disorders of metabolism. Before discussing the subject of nephritis, the author has included a general discussion on renal disease in an effort to clarify some of the points which tend to make this subject confusing to the general practitioner. The chapter on blood is unusually complete for a treatise of this type. The third volume deals with the diseases of the brain and nervous system. This part of the work is excellent. The subjects are covered with almost the same thoroughness as in a textbook on neurology, and yet the facts are concise and readily available to those who are not specially trained in diseases of the nervous system. The general practitioner will find these volumes a reliable and conservative textbook of medicine. The style of the book is of such nature that it will serve as a readily available source of practical clinical information and a guide to the peculiarities of individual cases.

Über das elektrische Schneiden mit der Drahtschlinge in der operativen Dermatotherapie und kleinen Chirurgie unter besonderer Berücksichtigung der Hauttuberkulose. Von Dr. med. Vinzenz Wucherpfennig, Priv.-Doz., Ass.-Arzt der Univ.-Haut-klinik Münster (Westf.). Mit einem Geleitwort von Professor Dr. A. Stühmer, Direktor der Univ.-Hautklinik Münster (Westf.). Paper. Price, 7 marks. Pp. 84, with 82 illustrations. Jena: Gustav Fischer, 1932.

This is a monograph based on four years' experience with electrosurgery with the wire loop. There is an introductory chapter on the historical development of the various types of electrical cutting procedures. In the second chapter the theoretical and practical application of the cutting current is taken up in detail and three types of incisions with a specially constructed wire loop are described under the titles of "Hohlschnitt," "Flachschnitt" and "Spaltschnitt." The questions of hemostasis, anesthesia and after-treatment are adequately discussed. The author's preference is for healing of even large defects by granulation rather than by skin grafting or tissue transplantation. The main application of this method of electrosurgery is found in the field of cutaneous tuberculosis, although it is also used for biopsy, skin cancer, nevi, verruca, senile keratoses and the excision of x-ray ulcers and carcinomas. Of 654 cases treated by the author, 452 were cases of tuberculosis cutis. The cosmetic results in this disease are naturally of the greatest importance in addition to the time factor, as it is well known that the modern dietetic and actinic treatment of cutaneous tuberculosis is a slow and time-consuming procedure. A careful study of the illustrations showing the end-results of the treatment would lead one to the conclusion that this method causes an excessive amount of scarring and that the cosmetic results cannot compare with those of modern Finsen therapy. The main advantage seems to be found in the saving of time, the saving of expense and possibly a diminished frequency of recurrence in the scar tissue. It is apparent that this method of electrical surgery should not be undertaken lightly or without special training in the various methods of procedure.

The History of Paediatrics: The Progress of the Study of Diseases of Children up to the End of the XVIIIth Century. By George Frederic Still, M.A., M.D., Hon. LL.D., Professor of Diseases of Children, King's College, London. Cloth. Price, $8. Pp. 526, with illustrations. New York: Oxford University Press, 1931.

Those who are interested in pediatrics or the history of the development of this specialty will find in this volume delightful and instructive reading. It is the first work of its kind by an Englishman, and much of it is particularly devoted to the development of pediatrics in England. The material presented consists largely of thumbnail biographic sketches set forth in the author's usual delightful style. A scientific accuracy and terseness permeates the book. The subject matter is chronologically organized and spans the period from Hippocrates through the eighteenth century. A great deal of original research work has been done in collecting and assembling known and heretofore unknown data. As source material the author has liberally drawn from early inaugural dissertations. A bibliography of these in the appendix lends additional value to the book. The text is richly illustrated by well chosen reproductions of early medical editions dealing with the care and treatment of infants and children. There are also numerous reproductions of fine old portraits, all of which constitute a fairly comprehensive collection of pediatric pioneers. The biographic nature of the book recommends it as a ready reference volume. Its simplicity, continuity and charming style merit it a prominent place among the contributions to medical history.

Tuberculosis in South African Natives With Special Reference to the Disease Amongst the Mine Labourers on the Witwatersrand. Being the Report of the Tuberculosis Research Committee, Originally Established by the Transvaal Chamber of Mines and Later Expanded Into a Joint Committee by Incorporation of Representatives of the Union Government. Publications of the South African Institute for Medical Research, Volume V, No. 30. Edited by the Director. Paper. Pp. 429, with illustrations. Johannesburg: South African Institute for Medical Research, 1932.

This elaborate report will interest all who are concerned actively in the study and prevention of tuberculosis. It shows strikingly the magnitude, complexity and difficulties of the tuberculosis problem in South Africa. Here the disease flourishes in the manner more or less characteristic of its manifestations on "virgin soil." From isolated, often distant, native communities are recruited large numbers of laborers for work, mostly underground, in the mines on the Witwatersrand. Above ground the miners live in crowded and insanitary compounds. The term of the mine labor usually is one year. The number of hours underground each day is at least ten, with little or no chance for food or rest in the meantime. It is consequently no wonder that active tuberculosis develops in large numbers of the workers, most of whom carry the disease back to their home communities on repatriation after their term is over. The report describes the condition both of the mines and of the home life of the natives and offers a series of well founded and constructive recommendations for reducing the sources of infection and increasing the resistance. The lack of adequate statistics concerning the native population as a basis for assessing the value of health work is emphasized. The usefulness of the report would have been increased by an index.

Will It Be a Boy? Sex-Determination According to Superstition and to Science. By Dr. F. Økland, Assistant Professor, Aas, Norway. Cloth. Price, $1.50. Pp. 116, with 14 illustrations. New York: Century Company, 1932.

This book was written for laymen. In simple language the author explains the known facts of sex determination not only in human beings but also and in greater detail among the lower animals. The first part of the book contains a discussion of a few superstitions concerning the determination and the wilful control of the sex of offspring.

Medicolegal

Pharmacists: Liability for Quality of Drugs Sold.—A druggist, under section 5813 of Mason's Minnesota Statutes, 1927, is responsible for the quality of all drugs, chemicals and medicine sold by him, except proprietary medicines and other articles sold in the original packages of the manufacturer. In the opinion of the Supreme Court of Minnesota, this section was not enacted to relieve druggists of responsibility but was enacted for the additional protection of the public. At common law, a druggist is bound to exercise toward his patrons that degree of care which is commensurate with the hazards and dangers to which they are exposed. Only as to the quality of nonproprietary medicines has the statute undertaken to define the responsibility of the vender. In other respects and as to proprietary medicines, the law requires the same degree of care that was required at common law. In connection with the sale of proprietary medicine in original packages, the druggist is not required to analyze the medicine or drug, when sold for the purpose for which compounded, and if the manufacturer is a reputable one the druggist may rely under ordinary circumstances on the rectitude of the manufacturer and the correctness of his compound. Ordinary care under such circumstances does not require a greater degree of diligence. But when a druggist obtains from a manufacturer drugs which he does not sell under the name of the manufacturer, but under his own name, accompanied by a statement that it was manufactured or prepared for him, the druggist assumes a responsibility equivalent to that of the manufacturer of the drugs. The word "proprietary," as applied to medicines, necessarily implies that the medicine has been compounded by a manufacturer who prepared the medicine according to his own formula, though probably it is not necessary that the formula be the exclusive property of the maker or that the process be secret. A medicine cannot be considered "proprietary" unless the original package in which it is contained bears the name of the manufacturer. If it does not, it comes within the rule applied to other medicines and drugs sold by a druggist, for the quality of which the statute holds him responsible.—*Tiedje v. Haney (Minn.), 239 N. W. 611.*

Workmen's Compensation Acts: Lead Poisoning an Accident.—Ramsay was engaged in welding the edges of sheets of lead lining large tanks and cells. After having been so engaged for about four weeks, he manifested symptoms of lead poisoning. He had had no experience and had no information as to the danger of his work and did not knowingly submit himself to its hazards. His employer was equally ignorant, and if he had realized the hazards of the task, he would have furnished his employee with a respirator or mask, which he did not do. The evidence showed that the oxides of lead absorbed into the employee's body brought about a result in a few weeks which, according to the testimony of medical witnesses, would usually take a period of months or possibly years to produce and which was not the customary or natural result that follows the absorption of lead oxide into the system. In the shortness of the time within which disability resulted lies the distinction between an occupational disease and an injury by accident. If the injury was the result of lead poisoning, under the peculiar circumstances of this case, said the Supreme Court of Idaho, we are of the opinion that it was a personal injury by accident arising out of and in the course of employment, within the meaning of the workmen's compensation acts, and that it was therefore compensable.—*Ramsay v. Sullivan Mining Co. (Idaho), 6 P. (2d) 856.*

Revocation of Physician's License: Necessity for Notice of Hearing.—Before a license to practice medicine in Florida can legally be revoked, a copy of the charges on which it is proposed to take action and a notice of the time and place when and where they will be heard by the board of medical examiners must be served on the licentiate. If a license is revoked, the licentiate may have the proceedings of the board reviewed by certiorari to the appropriate circuit court (Compiled Laws of Florida, 1927, section 3415). In this case, charges against a physician were filed with the board and a time and place for a hearing were fixed, but no copy of the charges nor notice of the time and place of hearing was served. At the time and place appointed the board peremptorily revoked the license without affording the licentiate a chance to defend. He thereafter sought a writ of mandamus to compel the board to reinstate his license. The board contended, however, that the writ of mandamus did not lie, because the medical practice act provided a complete and adequate remedy through a writ of certiorari. But, said the Supreme Court of Florida, the statute relied on by the board provides a complete and adequate remedy, other than mandamus, only for a licentiate whose license has been revoked after compliance with its terms. In the statute certain fundamental rights of an accused licentiate are set out. Their observance is mandatory, but in this case they were ignored by the board. The license was revoked in this case in a manner contrary to the spirit of our institutions and directly opposed to the letter of the law governing such revocation. There is, therefore, nothing for the circuit court to review on which it could predicate its judgment. The aggrieved physician in this case is entitled to have his license reinstated as prayed for in the writ, subject to proper proceedings under the statute.—*State ex rel. Tullidge v. Hollingsworth (Fla.), 138 So. 372.*

Evidence: Use of Mortality Tables.—When injuries which are the basis of actions for damages amount to permanent incapacity, mortality tables are commonly used to assist the jury in estimating the plaintiff's expectancy of life and in determining the probable duration of incapacity. Such tables give only the average of a large number of lives; in the individual case the expectancy may be higher or lower than the average. According to the Supreme Court of Errors of Connecticut, while mortality tables are generally held to be admissible, they are not conclusive. They are not the only evidence admissible in proof of expectancy of life; the jury may determine this from other evidence, such as evidence of the age, health, habits and physical condition.—*Donoghue v. Smith (Conn.), 157 Atl. 415.*

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Montreal, Sept. 19-23. Dr. William P. Wherry, 1500 Medical Arts Building, Omaha, Neb., Executive Secretary.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, French Lick, Indiana, Sept. 12-14. Dr. Magnus A. Tate, 19 West Seventh Street, Cincinnati, Secretary.

American Congress of Physical Therapy, New York, Sept. 6-10. Dr. F. B. Balmer, 185 North Wabash Avenue, Chicago, Secretary.

American Hospital Association, Detroit, Sept. 12-16. Dr. Bert W. Caldwell, 18 East Division Street, Chicago, Executive Secretary.

American Physical Therapy Association, Detroit, September 28-30. Dr. C. C. Vinton, 585 West End Avenue, New York, Secretary.

American Roentgen Ray Society, Detroit, September 27-30. Dr. Eugene P. Pendergrass, 3400 Spruce Street, Philadelphia, Secretary.

Colorado State Medical Society, Estes Park, Sept. 8-10. Mr. Harvey T. Sethman, 227 16th Street, Denver, Executive Secretary.

Delaware, Medical Society of, Lewes, September 27-28. Dr. W. O. La Motte, 604 Medical Arts Building, Wilmington, Secretary.

Idaho State Medical Association, Pocatello, Sept. 16-17. Dr. Harold W. Stone, 105 North Eighth Street, Boise, Secretary.

Indiana State Medical Association, Michigan City, September 27-29. Mr. T. A. Hendricks, 23 East Ohio Street, Indianapolis, Executive Secretary.

Kentucky State Medical Association, Louisville, October 3-6. Dr. A. T. McCormack, 532 West Main Street, Louisville, Secretary.

Michigan State Medical Society, Kalamazoo, Sept. 13-15. Dr. F. C. Warnshuis, 148 Monroe Avenue, Grand Rapids, Secretary.

Nevada State Medical Association, Reno, Sept. 23-24. Dr. Horace J. Brown, 120 North Virginia Street, Reno, Secretary.

Oregon State Medical Society, Klamath Falls, Sept. 22-24. Dr. Albert W. Holman, 410 Taylor Street, Portland, Secretary.

Pennsylvania, Medical Society of the State of, Pittsburgh, October 3-6. Dr. Walter F. Donaldson, 500 Penn Avenue, Pittsburgh, Secretary.

Utah State Medical Association, Ogden, Sept. 15-17. Dr. Leland R. Cowan, 305 Medical Arts Building, Salt Lake City, Secretary.

Vermont State Medical Society, Burlington, October 6-7. Dr. William G. Ricker, 31 Main Street, St. Johnsbury, Secretary.

Washington State Medical Association, Tacoma, Sept. 12-14. Dr. Curtis H. Thomson, 1305 Fourth Avenue, Seattle, Secretary.

Wisconsin, State Medical Society of, Milwaukee, Sept. 14-16. Mr. J. G. Crownhart, 119 East Washington Avenue, Madison, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Cancer, New York

16: 439-680 (May) 1932

*Ovarian Neoplasms: Some Points in Their Pathology, Clinical Features and Treatment. W. B. Bell and M. M. Datnow.—p. 439.

*Malignant Tumors of Thymus Gland. E. H. Crosby, Albany, N. Y. —p. 461.

*Chronic Lactation Mastitis, Suppurative and Nonsuppurative: Difficulty of Distinguishing It from Cancer Clinically, at Exploratory Incision, from Its Fresh Appearance and in Microscopic Section: Analysis of Forty-Three Cases. L. C. Cohn, with Remarks by J. C. Bloodgood, Baltimore.—p. 487.

*Note on Occurrence of Herpes Zoster in Hodgkin's Disease, Lymphosarcoma, and the Leukemias. L. F. Craver and C. D. Haagensen, New York.—p. 502.

*Tumors of Maxillary Sinus. W. T. Peyton, Minneapolis.—p. 515.

Melanoma in Negro. E. L. Bishop, Atlanta, Ga.—p. 522.

Multiple Myeloma of Bone: Report of Two Cases with Remarks on Histogenesis. H. W. Williams, Providence, R. I.—p. 540.

Histologic Reaction of Muscle Tissue to Presence of Rapidly Growing Malignant Tumor. R. S. Leadingham, Atlanta, Ga.—p. 556.

Postmortem Observations of One Hundred and Fifty-Eight Cases of Carcinoma of Stomach. W. G. Harding 2d and F. D. Hankins, Los Angeles.—p. 561.

*Liver Diet and Tumor Growth. W. H. Woglom, New York.—p. 564.

*Comparative Study of Transplantability of Eight Mammary Gland Tumors Arising in Inbred Mice. A. M. Cloudman, Bar Harbor, Maine.—p. 568.

Influence of Time Factor in Irradiation of Drosophila Eggs. H. Roesler and P. S. Henshaw, New York.—p. 631.

Influence of Sex and Heredity on Development of Tar Tumors. M. C. Reinhard and C. F. Candee, Buffalo.—p. 640.

Melanoma of Caruncle: Case. V. A. Chapman, Milwaukee and Pasadena, Calif.—p. 645.

Indeterminate Lesion (Neoplasm?) in Albino Patient. E. Fischel and L. H. Jorstad, St. Louis.—p. 650.

Lymphosarcoma with Ovarian Involvement in Child. H. H. van Horn, Harrisburg, Pa.—p. 658.

Leiomyosarcoma of Cecum: Case. R. Trygstad, Brightwaters, N. Y. —p. 662.

Endothelioma of Lymph Nodes of Inguinal Region. N. P. Duany and E. Rivero, Havana, Cuba.—p. 665.

Ovarian Neoplasms.—Bell and Datnow show that in tumors of the ovary the previous history of the patient is of considerable importance, especially with respect to malignant neoplasms. The average age of patients with both innocent and malignant neoplasms, except cystic teratomas and possible sarcomas, falls between 42 and 50 years—the period of reproductive involution. A large majority of all women with ovarian neoplasms, innocent and malignant, are parous. The symptomatology is somewhat ambiguous in that menstrual disturbances may be due to associated uterine lesions rather than to the ovarian neoplasms. Abdominal pain and loss of weight, however, are important indications of malignancy. The physical sign of ascites cannot be relied on as a determining factor in the diagnosis since it is frequently present with innocent solid, and occasionally cystic, ovarian tumors. Ascites is observed only in certain well defined circumstances and is due to mechanical or chemical irritation of the peritoneum. Treatment is entirely surgical and should always be practiced in cases of innocent neoplasms. With these lesions, conservation of normal ovarian substance should be attempted in young women. Difficulties in diagnosis may sometimes deter the surgeon from acting in this manner. In parous women about or after the menopause, who form the majority of all cases, bilateral salpingo-oophorectomy with panhysterectomy should be done. If the patient is nulliparous, supravaginal hysterectomy with salpingo-oophorectomy is sufficient. In young parous women the removal of ovarian cysts by the vaginal route may be done with advantage. If laparotomy is performed, the tumor should be removed without preliminary tapping or puncture. The treatment of malignant neoplasms is curative or palliative. Lead therapy is often a useful adjunct to surgical procedures. Radiotherapy is not to be recommended.

Malignant Tumors of Thymus.—Crosby presents a typical case of thymic lymphocytoma in which the diagnosis was made at necropsy. The acute onset of symptoms and the rapidly fatal termination of the disease made diagnosis difficult and treatment futile. When such cases are seen early, roentgen therapy offers an excellent prognosis and even the hope of complete recovery. A discussion of the clinical course of malignant tumors of the thymus and a review of the physical signs, including the typical roentgen shadow, indicate that diagnosis can often be made early, and in early diagnosis and roentgen treatment lies the only hope for the patient. The author found 165 cases of malignant disease of the thymus in the literature, which, with the case he presents, make a total of 166 cases. Of these, 122 were sarcomas, so called, and 44 carcinomas.

Chronic Lactation Mastitis.—Cohn emphasizes the fact that mastitis is not always a clinical entity. It sometimes masquerades as cancer, while cancer may masquerade as mastitis. A palpable mass in the breast is said to be of the mastitis type if it feels like the caked breast of the nursing woman. If such a mass is associated with lactation and accompanied by fever and leukocytosis, exploration is indicated, on the diagnosis of acute lactation mastitis. In the absence of these cardinal signs, such masses have been observed in advanced carcinoma, comedo-adenoma with or without carcinoma, chronic lactation mastitis, chronic diffuse traumatic mastitis, tuberculous mastitis, and two types of chronic cystic mastitis—the shotty breast and diffuse dilatation of the ducts with mastitis. In studying sections of mastitis cases not associated with lactation, the author has been unable to find any case of acute or chronic mastitis, except in association with cancer, tuberculosis, diffuse dilatation of the ducts in chronic cystic mastitis, following trauma with a needle, or in association with hematoma after injury. It would seem, therefore, that mastitis is periductal or periacinal and is associated with dilatation of the ducts in chronic cystic mastitis, with lactation hypertrophy, or with trauma, tuberculosis or cancer. In chronic lactation mastitis the tumor begins as an area of induration. When explored early, it is found to be a solid, nonencapsulated area firmer than the surrounding breast tissue. If exploration is delayed, the induration disappears spontaneously, goes on to suppuration, or remains as a residual tumor. Chronic lactation mastitis is characterized microscopically by evidence of lactation hypertrophy (varying from the fully developed lobule of lactation to small areas of residual lactation hypertrophy) associated with infection. Microscopically, lactation hypertrophy has frequently been interpreted as carcinoma. It must be differentiated, also, from the pseudolactation hypertrophy sometimes seen in carcinoma. The infection may be simply an area of chronic inflammation in which small lymphocytes predominate, or there may be an abscess varying in size from one visible only under the microscope to the large abscess in which fluctuation can be elicited. Areas of residual lactation hypertrophy may be present in a breast many years after lactation. A tumor may follow a lactation mastitis immediately or may appear some time later. The longest interval in the author's series between lactation and the appearance of a tumor showing lactation hypertrophy was fourteen years.

Occurrence of Herpes Zoster in Hodgkin's Disease.—Craver and Haagensen report seven cases of secondary herpes zoster that were observed among 329 cases of lymphosarcoma, Hodgkin's disease and leukemia. On the basis of the clinical data it can be said only that these cases suggest that herpes zoster was due to the involvement of nervous structures by the tumor process. This relationship was most apparent in four cases in which herpes zoster developed at or near the same time that a focus of the neoplastic disease appeared on the same side of the body and in the same general anatomic region. The authors believe that the development of herpes zoster should suggest to the clinician the possibility of an underlying lymphosarcoma, Hodgkin's disease or leukemia.

Tumors of Maxillary Sinus.—Peyton calls attention to the fact that cancer of the antrum constitutes approximately 1 per cent of all cancer. Surgery alone, total excision of the maxilla, carries a high mortality (15 to 40 per cent) and results in few

if any permanent cures. The author believes that with proper combination of surgery and radium five-year cures may be obtained in 10 per cent of all cancers of the antrum coming for treatment.

Liver Diet and Tumor Growth.—Woglom reports that, contrary to the results obtained by other investigators, the daily feeding of some 10 Gm. of fresh uncooked beef liver to each rat bearing sarcoma 8, 10, 39 or the Flexner-Jobling carcinoma had no demonstrable effect on the growth of any of these four tumor strains in 276 animals of a line employed at the Crocker Institute.

Transplantability of Mammary Tumors.—The carcinomas employed by Cloudman in his investigation occurred spontaneously in the mammary glands of females from the highly inbred A stock from Strong's laboratory, and their growth after transplantation was primarily dependent on susceptibility factors carried by the individuals of the A stock and transmitted by them into their hybrids. These tumors appear to need but few susceptibility factors for their continued growth after transplantation when compared with the experience of investigators who have used tumors of hybrid or of unknown genetic type. The histologic structure of these carcinomas does not indicate their degree of malignancy. The author verified the multiple factor hypothesis as the explanation of susceptibility to implanted tumors and demonstrated that the use of genetically controlled stocks is of major importance in detecting and analyzing the physiologic characteristics of transplanted tumors.

American Journal of Diseases of Children, Chicago

43: 1051-1292 (May) 1932—Part I

*Glycemia in Cachexia of Nurslings. E. Jaso, Madrid, Spain.—p. 1051.
*Human Milk Studies: X. Daily and Monthly Variations in Milk Components as Observed in Two Successive Lactation Periods. Betty Nims, Icie G. Macy, Helen A. Hunscher and Minerva Brown, Detroit.—p. 1062.
*Levinson Test in Tuberculous Meningitis. M. Gleich, with technical assistance of A. Hartstein, New York.—p. 1077.
*Symptoms in Congenital Lesions of Heart that Permit Venous Shunting. C. B. Leech, Providence, R. I.—p. 1086.
Acid-Base Metabolism of Normal Child on Diets that Increase in Fat Content. C. A. Weymuller and Sarah Ratner, Brooklyn.—p. 1092.
Infantile Diarrhea: Preliminary Report. M. W. Poole and T. B. Cooley, with technical assistance of Lucia Ellwart, Detroit.—p. 1101.
*Disturbances of Growth in Chronic Arthritis in Children. J. G. Kuhns and L. T. Swaim, Boston.—p. 1118.

43: 1293-1432 (May) 1932—Part II

Celiac Diseases: Rachford Memorial Lectures. L. G. Parsons, Birmingham, England.—p. 1293.
Physical Growth of Boys: Study by Means of Water Displacement. D. E. Zook, Chicago.—p. 1347.

Glycemia in Cachexia of Nurslings.—Jaso presents experimental data showing that in simple nutritional cachexias the blood sugar value is, on an average, 43 per cent lower than normal. The intensity of the hypoglycemia is in proportion to the denutrition. The presence of hypoglycemia was not confirmed in dystrophies of specific cause (syphilis, tuberculosis). The blood sugar remains within normal limits in hypothreptic infants in whose diet cereals are included. It returns to its normal value when the patient with athrepsia is progressing toward recovery. The blood sugar of nurslings can fall as low as 0.3 mg. per thousand cubic centimeters without clinical signs of hypoglycemia.

Human Milk Studies.—Under controlled methods of milk expression, sampling and analysis, Nims and her associates made extensive observations on three lactating women, two during two successive lactations of fourteen months' duration and a third during a single lactation period of similar duration. Observations were made also on another group of women during the earlier months of lactation. The nitrogen content of the milk decreased rapidly up to the sixth month and then remained fairly constant; the concentration of total ash and calcium decreased gradually; the phosphorus diminished gradually until the later months, when an increase occurred; the fat and total solids also decreased during the earlier months of lactation and then regained high values in late lactation. The data demonstrate that the various milk components, although varying from day to day and changing during lactation, fluctuate about a level that is characteristic for the individual woman, and that this individuality of fluctuation is maintained not only during one lactation but also through successive lactation periods. Over and above these individual trends in fluctuation, the composition of the milk in all three subjects showed a similar trend of changes as lactation progressed.

Levinson Test.—According to Gleich, the Levinson test is done thus: One cubic centimeter of spinal fluid is placed in each of the two test tubes 8 mm. in diameter. To one is added 1 cc. of a 1 per cent solution of mercuric chloride and, to the other, 1 cc. of a 3 per cent solution of sulphosalicylic acid. The tubes are well shaken, stoppered and allowed to stand at room temperature for forty-eight hours. At the end of twenty-four and forty-eight hours the column of precipitate in each tube is measured in millimeters. When the height of the precipitate in the first test tube is seen to be twice that of the precipitate in the second tube, the result of the test is positive. On the basis of his experience with the test in a large number of cases of tuberculous meningitis and other intracranial conditions, the author considers that the Levinson test is of value. Days before tubercle bacilli were found in the spinal fluid, if at all, or necropsies helped to confirm the diagnosis, the Levinson test was positive. In all the cases of tuberculous meningitis, the test was positive. In these cases the finding of tubercle bacilli or necropsy confirmed the reliability of the Levinson test. However, the test is corroborative and one should consider it together with the history, physical observations and clinical data in making a diagnosis.

Congenital Lesions of Heart.—The clinical records of sixty-two patients with congenital heart lesions, revealed at necropsy, of such a nature as to permit venous shunting, were studied by Leech in an attempt to determine the presence or absence of characteristic symptoms and signs. Nearly half of these patients did not present any clinical abnormalities referable to the circulatory apparatus. While the incidence of cyanosis, periodic as well as constant, was found to be somewhat higher in this group than among twenty other patients whose necropsies revealed congenital defects of the heart that did not permit venous shunting, this sign was found not to differentiate sufficiently the two general types of lesions. Eight (13 per cent, approximately) of the large group presented a syndrome that was almost totally absent in the smaller group with the non-venous shunt type of defect. In the larger group, five additional patients presented convulsive seizures not accompanied by cyanosis and respiratory distress. In conclusion, the author states that when other causes, such as pneumonia, epilepsy, meningitis and severely toxic conditions, can be ruled out and when the patient is known to have congenital heart disease, the occurrence of convulsion-like seizures, often epileptiform in character, sometimes followed by drowsiness and frequently accompanied by hyperpnea, may justly be interpreted as an indication of a lesion, or a combination of lesions, that permits venous shunting, especially if the patient shows a constant cyanosis, no matter how slight, or if the attack is accompanied by a deep cyanosis.

Chronic Arthritis in Children.—Kuhns and Swaim call attention to the fact that disturbances in growth are not uncommon in chronic arthritis in children. Such disturbances may appear only after several years of the disease and are found oftenest in children with poor health and resistance. These disturbances, while they are influenced by nonuse of the body and by nutritional and endocrine dysfunction, are due chiefly to the involvement of the proliferating epiphyseal cartilages, resulting in early ossification. They are dependent on the severity and chance location of the arthritis. There are three general types of disturbances in growth in chronic arthritis. The commonest of these is the persistence of infantile proportions in the hands and feet. Shortness of an extremity or a portion of an extremity, or symmetrical shortening of two limbs, is fairly common. Dwarfism is relatively rare but occurs in cases of severe generalized arthritic involvement. The prevention and cure of these disturbances rest, first, on general measures to combat the disease in its early stage and to improve the general condition of the patient as rapidly as possible, and, secondly, on local measures to improve the function of the extremities and to promote circulation. The authors believe that every child with chronic arthritis should be observed at regular intervals for at least five years after the disease is quiescent.

American Journal of Orthopsychiatry, Menasha, Wis.

2: 103-195 (April) 1932

Psychiatric Concepts of Early Greek Philosophers. Augusta F. Bronner, Boston.—p. 103.
Psychiatric Factors in Stealing. H. M. Tiebout and M. E. Kirkpatrick, New York.—p. 114.
Social-Situation Pictures in Psychiatric Interview. L. A. Schwartz, Detroit.—p. 124.
*Emotional Problems in Children as Related to Duration of Breast Feeding in Infancy. A. T. Childers and B. M. Hamil, Detroit.—p. 134.
Study of Twenty-Five Children Presenting the Withdrawal Type of Personality. S. W. Hartwell, Worcester, Mass.—p. 143.
Some Aspects of Treatment by Psychiatrist and Psychiatric Social Worker. Marjorie Stauffer, New York.—p. 152.
Autobiography as Psychiatric Technic. L. S. Selling, Chicago.—p. 162.

Emotional Problems Related to Breast Feeding.—Childers and Hamil reviewed the social histories of 469 children under 13 years of age referred to the Neuro-Psychiatric Clinic of Harper Hospital, Detroit, and tabulated objectionable behavior manifestations. The various symptoms of behavior, calculated in percentage of frequency of occurrence, were plotted in a curve for the entire number, and these items in the same order were in similar manner plotted for four groups into which the 469 cases were divided. The graphs seem to show that undesirable behavior manifestations are generally greater among those children who were weaned between the first and sixth months of infancy. Those children who were never breast fed have the next greatest percentage frequency of such manifestations. The group in which breast feeding was continued into the "normal" period for weaning reveals a smaller percentage of undesirable conduct manifestations than the two foregoing groups. The group in which breast feeding was prolonged beyond the eleventh month shows the smallest percentages of undesirable behavior traits but the difference between this and the immediate foregoing group is not marked. The children who were weaned between the first and fifth months show the highest percentage of abnormal behavior manifestations. The explanation assumed for this group being so involved is that these children, becoming adapted to breast feeding and then being called on to adjust to bottle feeding, had certain emotional conditionings to which the other groups were not subjected in so great a degree.

American Journal of Pathology, Boston

8: 263-365 (May) 1932

Osteitis Fibrosa. F. J. Lang, Innsbruck, Austria.—p. 263.
Vaccinal Infection of Chorio-Allantoic Membrane of Chick Embryo. E. W. Goodpasture, Alice M. Woodruff and G. J. Buddingh, Nashville, Tenn.—p. 271.
*Subcutaneous Nodules in Chronic Arthritis: Clinical, Pathologic and Bacteriologic Studies. B. J. Clawson and M. Wetherby, Minneapolis.—p. 283.
Method for Progressive Selective Staining of Nissl and Nuclear Substance in Nerve Cells. L. Einarson.—p. 295.
Concerning the Histology of Melanoma. N. C. Foot, Cincinnati.—p. 309.
Id.: II. With Especial Consideration as to Nervous Elements of Tumor. N. C. Foot, Cincinnati.—p. 321.
Histochemical Studies by Micro-Incineration of Normal and Neoplastic Tissues. G. H. Scott and E. S. Horning, Chicago.—p. 329.
Multiple Papillomas of Larynx with Aerial Metastases to Lungs: Case. H. B. Hitz and E. Oesterlin, Milwaukee.—p. 333.
Lumbosacral Teratoma Associated with Spina Bifida Occulta: Report of Case with Review of Literature. P. C. Bucy and H. E. Haymond, Chicago.—p. 339.
Micrococcus Pharyngis Siccus Endocarditis. I. Graef, C. E. de la Chapelle and Margaret C. Vance, New York.—p. 347.
*Effect of Radium Emanation on Histocyte in Liver of White Rat. G. M. Higgins and J. C. T. Rogers, Rochester, Minn.—p. 355.

Subcutaneous Nodules in Chronic Arthritis.—Clawson and Wetherby studied 200 patients having chronic arthritis, to determine the frequency of subcutaneous nodules in this disease. Nodules varying in diameter from 5 mm. to 3 cm., and in number from one to several per patient, were found in 29.5 per cent of the cases. Structurally these nodules seemed to be similar to those found in acute rheumatic fever and to those produced in animals by injecting streptococci. They tended to be larger in chronic arthritis. The microscopic structure was chiefly polyblastic in character, but small areas of necrosis and abscess formation were commonly seen. When these nodules were macerated under sterile conditions and cultures taken in beef infusion dextrose broth, diplococci morphologically and culturally similar to those commonly found in the blood of patients having acute rheumatic fever or chronic arthritis were isolated in 70.6 per cent of the cases. The frequency of the subcutaneous nodules in acute rheumatic fever and chronic arthritis, the similarity of the gross and microscopic structure of the nodules in these two conditions and in experimental streptococcic nodules, and the frequency with which streptococci are yielded by cultures from the blood in acute rheumatic fever and from the blood and nodules in chronic arthritis, strongly suggest that acute rheumatic fever and chronic arthritis for the most part have a common streptococcic etiology and that the two diseases are in all probability different manifestations of the same process.

Radon and Histocyte in Liver of Rat.—Higgins and Rogers report the results of a study of the reaction of the histocytes in the liver to radon, as contained in gold radon seeds. Similar but inactive gold seeds were used in a series of control animals to determine the local reaction to such foreign bodies. All local histocytes within the vicinity of the inactive gold seed responded immediately to the foreign body by retracting their processes, desquamating into the sinusoids or migrating into adjacent parenchyma. Their function as littoral histocytes had apparently ceased and they were not concerned in an attack on the foreign body. Seventy-two hours after insertion of the inactive seed into the parenchyma, an effective barrier had been formed around it by these actively migrating histocytes. Subsequently these cells contributed toward the formation of connective tissue. All histocytes in the vicinity of the active radon seed were as susceptible to the emanation as the cells of the parenchyma. The extent of the destruction by the radon increased until the maximal injury was reached about the thirty-fifth day. Histocytes within the zone of injury were destroyed, and those immediately beyond did not manifest signs of restorative activity during this period. After the fifth week, however, a retarded restorative activity was manifested by the histocytes just peripheral to the zone of maximal injury. By the tenth or twelfth week these cells considerably remote from the radon seed, and which either had not been affected or only slightly affected by the radon, migrated rapidly toward the seed and contributed toward the formation of a wall comparable to that seen three days after the implantation of the control seed.

American Journal of Physiology, Baltimore

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Vagal Depression of Turtle Atrium: Study of Integration of Effect of Nerve Impulses. A. S. Gilson, Jr., St. Louis.—p. 459.
Studies on Physiology of Sleep: VI. Behavior of Decorticated Dogs. N. Kleitman and N. Camille, Chicago.—p. 474.
*Studies at High Altitude: Blood Observations on Indian Natives of Peruvian Andes. A. Hurtado, Rochester, N. Y.—p. 487.
Changes in Muscle Glycogen Accompanying Physical Training. H. A. Procter and C. H. Best, Toronto, Canada.—p. 506.
Functional Analysis of Cervical Sympathetic Nerve Supply to Eye. G. H. Bishop and P. Heinbecker, St. Louis.—p. 519.
Mechanism of Certain Ovarian Hormonal Influences on Central Nervous System. R. Y. Herren and H. O. Haterius, New York.—p. 533.
Action of Ovary, Stimulating Substance of Human Urine of Pregnancy on Uterine Motility of Unanesthetized Rabbit. S. R. M. Reynolds, Baltimore.—p. 545.
*Excretion of Estrin by Women. G. van S. Smith and O. W. Smith, Brookline, Mass.—p. 553.
Reflex Salivary Response in Dehydration (Limited Water Intake, Hyperthyroidism). L. E. Barron, Chicago.—p. 559.
Inquiry into Basis of Acetylene Method of Determining Cardiac Output. W. F. Hamilton, M. C. Spradlin and H. G. Saam, Jr., Louisville, Ky.—p. 587.
Contraction and Evacuation of Gallbladder of Rabbit Produced by Cholecystokinin. E. L. Walsh, Chicago.—p. 594.
Studies on Human Blood Pressure Criteria and Methods: I. Effects of Partial and Complete Occlusion on Actual Pressures in Compressed Arteries. Alice B. Maltby and C. J. Wiggers, Cleveland.—p. 604.
Circulatory Changes During Hyperthermia Produced by Short Radio Waves (Radiothermia). C. J. Wiggers and O. Orias, Cleveland.—p. 614.
Dynamic Changes in Ventricles Following Ligation of Ramus Descendens Anterior. O. Orias, Cleveland.—p. 629.
Physiology of Corpus Luteum: VIII. Interrelationship of Estrin and Corpus Luteum as Determined by Their Effects in Adult Rabbit. W. M. Allen, Rochester, N. Y.—p. 650.
*Physiology of Drainage of Nasal Mucus: III. Experimental Work on Accessory Sinuses. A. Hilding, Rochester, Minn.—p. 664.
Effects on Cardiac Musculature of Subthreshold Electrical Currents. A. S. Gilson, Jr., and H. B. Peugnet, St. Louis.—p. 671.
Comparative Effects on Carbohydrate Metabolism of Exhausting Motive and Emotive Responses and Exposure to Cold. H. Silvette and S. W. Britton, with technical assistance of R. F. Kline, Richmond, Va.—p. 685.

Effects of Cortico-Adrenal Extract on Carbohydrate Metabolism in Normal Animals. S. W. Britton and H. Silvette, Richmond, Va.—p. 693.

Apparent Prepotent Function of Adrenal Glands. S. W. Britton and H. Silvette, Richmond, Va.—p. 701.

Studies of Blood of Natives at High Altitude.—Hurtado presents a number of observations on certain of the blood characteristics of the Indian natives of the Peruvian Andes. The investigation was conducted at an altitude of 14,890 feet (4,532 meters) and with an average barometric pressure of 410 mm. of mercury. The subjects studied were carefully selected as normal men, and the results obtained suggest the following conclusions. 1. Observations on the erythrocyte count gave an average increase of about a million red cells per cubic millimeter over the normal value at sea level, but a considerable percentage of these natives live with a red cell count which would be considered normal at sea level. This observation indicates that an increase in the erythrocytes of the circulating blood, although the common condition, is not an essential adaptation process for normal life at high altitudes. There is no relationship between the red cell count and age or body measurements. 2. The average number of grams of hemoglobin per hundred cubic centimeters of blood has almost the same value as the normal average at sea level. In only 50 per cent of the cases was a higher result obtained. Each red cell at high altitude contains less hemoglobin, as compared with the normal erythrocyte at sea level, but the corpuscular hemoglobin is not a fixed characteristic: it varies inversely with the level of the red cell count; that is, the higher the count the less hemoglobin in each cell, and vice versa. Oxygen determinations in arterial and venous blood verify these observations and indicate that the red cell comes to the tissues with a lower oxygen content as compared with the erythrocyte at sea level. 3. There is a marked increase in the hematocrit (percentage of erythrocytes), and it is proportionally greater than the increase in the red cell count, with the result that each erythrocyte has a larger volume (as compared with the normal corpuscle at sea level). Again the corpuscular volume is not a fixed characteristic: it varies inversely with the level of the red cell count. The larger size of the erythrocyte was also confirmed by direct measurement of its diameter. 4. The diminished amount of hemoglobin in a larger corpuscle gives a lower value for the concentration of that substance in relation to the volume of the cell. Only about one fourth of the erythrocyte is saturated with hemoglobin. Equal and parallel changes in cell volume and hemoglobin, under the influence of variations in the red cell count, keep remarkably constant such concentration. There is an almost perfect inverse correlation between the hematocrit and the hemoglobin concentration in each red cell. These observations suggest that the adaptation processes to the high altitude, from the point of view of blood morphology, are to be found not primarily in red cell count and hemoglobin increases, as it has often been remarked, but rather in a fine and close correlation between cell number, volume and hemoglobin, and in the existence of a larger surface area in a given volume of blood and in the individual erythrocyte for the hemoglobin and oxygen content, factors which would favor the proper supply of this gas to the tissues, this last process being perhaps the basic and fundamental problem at high altitude.

Excretion of Estrin by Women.—The Smiths gave estrin orally to women, whose urines were followed for its excretion over a period of one or two months. Eight cases are reported, including four amenorrheic patients, three sterile women, and one normal control. The results would indicate that in women, as in rabbits, estrin is excreted only when the organism has been exposed to the action of corpus luteum. It appears possible by this means to differentiate between a persistent corpus luteum, irregular appearance or total absence of corpus luteum, and cyclic activity of the corpus luteum.

Drainage of Mucus in Accessory Sinuses.—Hilding describes an experiment in which he demonstrated that the drainage of the frontal sinus of a dog was effected by means of the movement of a lining film or web of mucin motivated by ciliary action. The film was extremely thin but of high viscosity and had sufficient tensile strength to sustain a considerable degree of traction. This traction was a very important factor in the drainage. The direction of motion was that of a flat, lateral spiral so arranged that there was but little tension from conflicting currents in the film of mucin. There was a speed gradient of fairly uniform acceleration (when numerous tests were averaged); the speed at the ostium was four to six times as great as that on the mesial wall. Several different materials were used to test the time required to raise small volumes from the deepest recess of the sinus, upward to the level of the ostium. All were moved more or less successfully, but thick, mucilaginous mucin was moved most completely and rapidly. Roughly, one or two hours was required to move out 1 cc. of thick mucin. A longer time was required to remove creamy pus, and still longer to remove watery substances. Clinical application of these facts can be made readily, if conditions in the sinuses of man are similar, as presumably they are. If bacteria gain access to a sinus and lodge in the film of mucin on the walls, they are swept out in a very short time. If a volume of fluid gains access, or a volume of secretion forms, a much longer time is required to remove it. In general, the more mucin there is in the secretion, the better it drains. Pus drains poorly on account of its physical properties. In addition it may contain toxins or other materials that destroy ciliary action.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

27: 657-800 (May) 1932

*Evaluation of Pneumoventriculography and Encephalography. A. W. Adson, Rochester, Minn.—p. 657.

*Encephalography in Children: Further Observations in Children with Fixed Lesions of Brain. R. C. Eley and E. C. Vogt, Boston.—p. 686.

*Interpretation of Roentgenograms of Pituitary Tumors: Explanations of Some Sources of Error Confusing Clinical and Roentgenologic Diagnoses. H. K. Pancoast, Philadelphia.—p. 697.

*Roentgen Observations in Chronic Progressive Bulbar Palsy. A. C. Christie. Washington, D. C.—p. 717.

*Contrast Medium Roentgenography in Thoracic Surgery. C. A. Hedblom and W. van Hazel, Chicago.—p. 720.

Mensuration of Heart and Chest in Left Postero-Anterior Oblique Position: Comparative Study: IV. Comparison of Transverse Diameters of Heart and Cardiothoracic Indexes of Chest Obtained from Postero-Anterior and Left Anterior Oblique Chest Films. W. W. Fray, Rochester, N. Y.—p. 729.

Agranulocytic Angina: Report of Effects of Irradiation in Marked Leukopenic States: Relation of Such Studies to Roentgen Treatment of Agranulocytosis. C. A. Waters and W. B. Firor, Baltimore.—p. 740.

Water Phantom Intensity Measurements of Roentgen Rays Produced by 127,000 Volts. J. L. Weatherwax and C. Robb, Philadelphia.—p. 749.

Principle of Absorption and Method of Multiple Converging Beams. A. U. Desjardins, Rochester, Minn.—p. 755.

Pneumoventriculography and Encephalography.—Adson considers ventriculography a valuable aid to differential diagnosis and localization of brain tumors. However, it should not be used indiscriminately; neither should it be substituted for thorough neurologic examination. Occasionally it may be employed to supply confirmatory evidence, or when the localizing clinical evidence is vague. It serves, also, as a therapeutic agent in avoiding unnecessary exploratory craniotomy by revealing normal ventricles or a subcortical, inaccessible tumor of the midbrain. The complications and the fatalities may be minimized by intravenous administration of hypertonic solutions, saline cathartics, and enemas, by repeated ventricular punctures, and by early exploration. Encephalography is of greatest value in the differential diagnosis and localization of arachnoiditis, posttraumatic lesions, and atrophy of the brain. Occasionally, it may be used as an aid to localization in cases in which tumor of the brain is suspected, without evidence of increased intracranial pressure. It is the author's impression that the use of encephalography is being abused, since the clinical features, often, are sufficient to make possible the diagnosis without subjecting the patient to the distressing symptoms of the procedure.

Encephalography in Children.—Eley and Vogt state that encephalography is a valuable diagnostic procedure in the study of children with fixed lesions of the brain. The information obtained warrants the dangers involved. The judicious employment of this procedure should eventually lead to a better understanding and classification of such conditions as epilepsy, feeblemindedness, and cerebral palsy occurring in children. From the encephalograms alone, however, one is unable to determine the nature of the initial etiologic agent responsible for the ultimate gross pathologic changes.

Roentgenograms of Pituitary Tumors.—According to Pancoast, roentgenologists must admit that the roentgenographic diagnosis of pituitary tumors is by no means infallible, even

aside from the difficulties in interpretation between their effects and the deformations of the sella produced by suprasellar and metasellar growths and rarely parasellar lesions. The ophthalmologist and the neurologist will also admit that the clinical manifestations of hypophyseal adenomas are not always typical. Satisfactory explanations for the discrepancies in characteristic roentgenographic appearances and clinical phenomena of the pituitary tumors are to be found in (1) peculiarities or variations in the sella turcica, (2) variations in the location of the optic chiasm, (3) anomalies and abnormalities in the constituent parts of the circle of Willis, and (4) variations in the location of the infundibulum. All these explanations are given, as far as possible, on the basis of careful anatomic and necropsy studies, operative observations and correlation of roentgenographic appearances with clinical, operative and postmortem observations. The author describes the normal anatomic and roentgenographic appearances of the sella turcica and variations therefrom within normal limits. As the sella is the key to the diagnostic situation in so many cases of intracranial lesions in various localities, a classification on the basis of sellar changes is strongly advocated, as follows: (1) intrasellar tumors (adenomas); (2) suprasellar growths, originating either from vestigial remnants of the craniopharyngeal pouch or from other midline structures nearby; (3) parasellar lesions arising in the middle fossa near the sella and deforming the latter directly or through the agency of the internal carotid artery, and (4) metasellar tumors, deforming through the agency of a dilated third ventricle enlarged from ventricular block below it. The differential points of distinction of each group are discussed, together with the effects of certain other causes of sellar deformation.

Chronic Progressive Bulbar Palsy.—Christie believes that chronic bulbar palsy should always be thought of in cases of difficulty in swallowing when the delay is in the pharynx. Roentgen examination serves to differentiate between obstruction to the lumen and deficient muscular action of the constrictors. Neurologic examination will usually serve to differentiate further between central lesions, those of the pons and medulla, and peripheral neuritis.

Contrast Medium Roentgenography in Thoracic Surgery.—Hedblom and van Hazel call attention to the fact that there are certain types of thoracic disease in which contrast medium roentgenography is especially valuable. First among these is bronchiectasis, and second that group of long standing suppurative processes in which the whole affected portion of the lung, because of fibrosis, pleural thickening, or fluid, presents a more or less diffuse clouding and in which the physical signs are similarly masked. In some cases of these conditions the opacity is so dense that even iodized oil fails to produce a very clear contrast shadow. In most instances, however, it shows the nature of the lesion when all other methods fail. In some types of empyema and of chronic tuberculosis it is of distinct help in diagnosis.

American Journal of Tropical Medicine, Baltimore

12: 199-277 (May) 1932

Differential Diagnosis of Sprue and Pernicious Anemia. B. K. Ashford, Porto Rico, West Indies.—p. 199.
Some Infections Simulating Experimental Typhus in Guinea-Pig. E. L. Walker and Marion A. Sweeney, San Francisco.—p. 217.
*Sunstroke and Allied Conditions in United States. G. C. Shattuck and Margaret M. Hilferty, Boston.—p. 223.
Invasion of Wall of Intestine by Trichomonas Hominis. K. M. Lynch, Charleston, S. C.—p. 247.
Transfer of Yellow Fever Virus from Female to Male Aedes Aegypti. J. A. Kerr and T. B. Hayne, Lagos, Nigeria, West Africa.—p. 255.
Rôle of Solutes and Colloids in Nutrition of Anopheline Larvae: Preliminary Report. E. H. Hinman, New Orleans.—p. 263.

Sunstroke and Allied Conditions in the United States.—Shattuck and Hilferty present the results of a statistical study which shows that the higher death rates attributed to excessive heat including sunstroke are distributed with great irregularity in the United States. As a rule, the death rates were markedly higher in urban than in rural localities. This feature becomes highly pronounced in years when the deaths from heat have been notably frequent. The rates fluctuate markedly from year to year, but a slight downward trend is indicated. The average death rates by ages are relatively high during the first year of life, and very low thereafter up to the age of 20. They then begin to rise gradually. After the age of 70, the rates rise sharply. The death rate from heat effects in states having a large Negro population is 2.4 times as high for the colored as for the white. This is approximately true for both sexes. A correlation with occupation is suggested by these figures. The reporting of deaths from excessive heat in every month of the year points to industrial conditions as causative of many of these cases. Although means of evaluating the importance of suitable clothing are not available, there are indications that it is a factor which should not be overlooked.

Archives of Dermatology and Syphilology, Chicago

25: 785-986 (May) 1932

Achromia Parasitaria: Its True Nature and Etiology. V. Pardo-Castello, Havana, Cuba.—p. 785.
"La Cacomondade": The Morbus Gallicus, Two Centuries Ago. W. R. Riddell, Toronto, Canada.—p. 790.
Chemotherapeutic Studies of Acetarsone (Stovarsol). G. W. Raiziss and Marie Severac, Philadelphia.—p. 799.
*Epidermophytids as a Clinical Conception. M. Scholtz, Los Angeles.—p. 812.
Urticaria from Sensitiveness to Cold: Recovery Following Removal of Pelvic Tumor. E. Weiss, Philadelphia.—p. 823.
Reaction of Skin and Its Secretions in Eczema: I. Hydrogen Ion Concentration of Skin Surface in Eczema. O. L. Levin and S. H. Silvers, New York.—p. 825.
Influence of Viosterol Hypercalcemia on Skin Irritability of Dogs. A. G. Schoch, Dallas, Texas.—p. 835.
Local Responses to Histamine in Normal Skin, in Dermatophytosis, in Alopecia Areata and in Scleroderma. A. D. King, Philadelphia.—p. 840.
Trichophytin in Diagnosis. C. M. Williams and C. C. Carpenter, New York.—p. 847.
Perspiration: II. Absence of the Aschheim-Zondek Hormone in Pregnancy. R. L. Gilman and F. D. Weidman, Philadelphia.—p. 852.
*Acute Disseminated Lupus Erythematosus. J. F. Madden, St. Paul.—p. 854.
Normal Pigmentation in Nails of the Negro. S. Monash, New York.—p. 876.
Poikiloderma Atrophicans Vasculare, Jacobi: Report of Case with Review of Recent Literature. L. Taussig, San Francisco.—p. 882.
*Spontaneous Spirochetosis and Experimental Syphilis in Rabbits. S. M. Fried and S. S. Orlov, Moscow, U. S. S. R.—p. 893.
*Annular Macular Syphilid (Neurosyphilid, Unna). F. C. Combes, New York.—p. 906.
Case of Xeroderma Pigmentosum, with Special Pigment Study. S. W. Becker, Chicago, and L. M. Pautrier and F. Woringer, Strasbourg, France.—p. 915.
Dermatitis from Cinnamon. L. Tulipan, New York.—p. 921.

Epidermophytids.—In summarizing an analysis of the clinical concept of the palmar and digital epidermophytids, Scholtz emphasizes the following points: 1. Bacteriologic evidence presented by him cannot be accepted as conclusive, because the claim of uniformly negative observations in the lesions of the hand is not concurred in by other observers. 2. The trichophyton test is not specific, and because of its persistent nature it is conducive to false positive tests and vague and uncertain clinical deductions. 3. Positive blood cultures and the experimental reproduction of mycotic dyshidrotic lesions are of argumentative importance, but so far they have been found positive in so few isolated cases as hardly to be definite proof of the conception of epidermophytids. 4. From a clinical point of view the conception of palmar and digital epidermophytids gives rise to many unsolved questions and unexplainable clinical problems; it rests also on statements and observations so conflicting with general dermatologic experience as to render it inacceptable without further clinical elucidation.

Lupus Erythematosus.—Madden calls attention to the fact that acute disseminated lupus erythematosus is an important clinical entity. The symptoms are more or less constant, but the degree of severity varies greatly. Constitutional symptoms may completely overshadow the cutaneous symptoms. Albuminuria was a constant finding in six fatal cases reported by the author. Its presence may be of definite prognostic value. In fatal cases leukocytosis does not develop, even when conditions arise in which it would be expected. The histopathology is not an important diagnostic aid but is suggestive and worthy of study. The disease has the characteristics of a septicemia or toxemia. Streptococci have been repeatedly reported to be present in the blood stream. Tuberculosis has not been proved to be an etiologic factor in many instances, but the newer work must be evaluated before tubercle bacilli are excluded as a probable cause. There is no specific therapy. The prognosis is grave, even when there is apparent recovery, for relapses are the rule.

Spirochetosis and Experimental Syphilis.—According to Fried and Orlov, spontaneous spirochetosis is an autonomous disease found in rabbits (and probably in the field hare). The infection is caused by Spirochaeta cuniculi and is transmitted from animal to animal by genital contact only, leading to a chronic disease of the skin in the anogenital region (and, in females, of the mucosa) and sometimes also of other parts of the body. The process is sometimes accompanied by a regional adenopathy. The occasional presence of spirochetes in the tributary lymph nodes and also in the blood previously reported by others was not confirmed in the authors' studies. The Wassermann and Sachs-Georgi reactions are, as a rule, negative in spontaneous spirochetosis. Animals cured of spontaneous spirochetosis are susceptible to new infections. Spirochaeta cuniculi causes no specific lesions in the viscera or in the central nervous system. Likewise the cerebrospinal fluid in this disease shows no cytologic or chemical changes. Spontaneous spirochetosis is a local parasitic disease of the skin which may be generalized in rare instances. It is believed that in spite of the morphologic identity of Spirochaeta cuniculi and Spirochaeta pallida, their biologic properties and the processes that they cause are entirely different. The two diseases can be differentiated by clinical and laboratory tests. In difficult cases the therapeutic test with bismuth or arsphenamine may be a reliable guide in the differential diagnosis. This study has revealed (as others also have observed) that, not infrequently, apparently normal rabbits show changes of the viscera, central nervous system and cerebrospinal fluid which resemble those seen in advanced syphilis in man. The results obtained from the study of the syphilitic disease of these organs in the rabbit must therefore be accepted with reservations.

Annular Macular Syphilid.—Combes describes annular macular lesions occurring in syphilis which, while clinically resembling those developing in early syphilis and in the relapsing roseola, are in reality not a cutaneous syphilid at all, in the histologic sense of the term, but rather a vascular manifestation of the disease. Their complete identity cannot be verified without a microscopic examination of the excised tissue, and then only when this is interpreted in correlation with the clinical features of the process. The apparent rarity of the condition may be readily explained. In the first place the eruption may be so faint as to escape notice, particularly in the absence of any subjective symptoms. Secondly, as it comes so long after the initial infection and because of its unusual and picturesque appearance, syphilis may not be suspected. It is most likely to be confused with erythema multiforme, pityriasis rosea, pityriasis versicolor, trichophytosis, seborrhea corporis and leprosy. From the cutaneous syphilids it may be differentiated by the fact that it is purely a circulatory disturbance and the clinical appearance is due solely to changes in the vascular network of the skin. Other classic characteristics are the complete absence of infiltration, the stability, chronicity and slow response to therapy.

Archives of Neurology and Psychiatry, Chicago

27: 987-1272 (May) 1932

*Lissauer's Dementia Paralytica: Clinical and Pathologic Study. H. H. Merritt, Boston, and M. Springlova, Prague, Czechoslovakia.—p. 987.
Studies in Sensation: II. Mode of Stimulation of Cutaneous Sensations of Cold and Warmth. H. C. Bazett and B. McGlone, Philadelphia. —p. 1031.
Nerve Degeneration Accompanying Experimental Poliomyelitis: II. Histologic and Functional Analysis of Normal Somatic and Autonomic Nerves of Monkey. G. H. Bishop, P. Heinbecker and J. L. O'Leary, St. Louis.—p. 1070.
*Spontaneous Subarachnoid Hemorrhage: Its Relation to Aneurysms of Cerebral Blood Vessels. I. Strauss, J. H. Globus and S. W. Ginsburg, New York.—p. 1080.
*Spontaneous Cerebral Hemorrhage: Discussion of Four Types, with Surgical Considerations. C. Bagley, Jr., Baltimore.—p. 1133.
*Brain Changes in Malignant Endocarditis. I. B. Diamond, Chicago. —p. 1175.
*Toxic Encephalopathy in Measles. A. Ferraro and I. H. Scheffer, New York.—p. 1209.
*Action of Certain Drugs on Cerebrospinal Fluid and Internal Jugular Venous and Systemic Arterial Pressures of Man. J. Loman and A. Myerson, Boston.—p. 1226.
Causes of Epilepsy. S. Cobb, Boston.—p. 1245.

Lissauer's Dementia Paralytica.—Merritt and Springlova review the clinical and pathologic reports in thirty-five cases of Lissauer's dementia paralytica in the literature and report eight additional cases. Their eight cases were characterized clinically by a relatively long duration, the presence of apoplectiform and epileptiform attacks, often jacksonian, and the appearance of localizing signs, such as hemiplegia and aphasia. Pathologically, they all showed macroscopic atrophy, usually unilateral, of certain convolutions, generally in the temporal lobe and inferior parietal lobe. Microscopically, they were characterized by the presence of status spongiosus in the cortex and myelin loss in the white matter of the atrophic convolutions. It is shown that these lesions are not produced by the usual dementia paralytica process alone, and on the basis of clinical and pathologic data it is concluded that they are produced by a combination of functional disturbance of the circulation with the dementia paralytica process. It is pointed out that the usual distribution of the atrophy in these cases agrees with the distribution of the posterior branches of the middle cerebral artery. It is also emphasized that there is nothing to separate sharply this type of case from the "usual" case of dementia paralytica. The differences would appear to be quantitative rather than qualitative. Functional disturbance of the circulation probably occurs in a much larger percentage of the cases of dementia paralytica than is represented by those diagnosed as Lissauer's dementia paralytica. Status spongiosus was found by Fischer in 10 per cent of cases of dementia paralytica, and it is probable that primary loss of myelin in the white matter would be found just as often if more thorough examinations were made.

Spontaneous Subarachnoid Hemorrhage.—Strauss and his associates describe thirty-four cases illustrating the syndrome of spontaneous subarachnoid hemorrhage. They call attention to the fact that the term "spontaneous subarachnoid hemorrhage" is limited to massive extravasation of blood into the subarachnoid space, caused by spontaneous rupture of a blood vessel; it excludes hemorrhages into the same space resulting from extension of intracerebral bleeding and minor bleeding in the course of systemic infections, blood disease or those occurring during agonal episodes. The syndrome is characterized by a relatively short prodromal period in which headache, dizziness, nausea and rigidity of the neck and spine are the most prominent manifestations. It is followed by an abrupt and explosive onset of the active stage, ushered in by violent headache, partial or total loss of consciousness, and occasionally convulsions. Examination discloses signs of meningeal irritation (rigidity of the neck and Kernig and Brudzinski signs), signs of increased intracranial tension (papilledema and depressed reflexes) and often palsies of extrinsic ocular muscles. At this stage the cerebrospinal fluid is usually bloody, occasionally xanthochromic and rarely clear. The clinical course may be short, the patient recovering in the course of several days, or stormy and protracted, lasting over a period of weeks (average in the authors' material, forty-six days). During the clinical course, neurologic and systemic manifestations may develop and disappear. Among the former are intellectual and emotional disturbances, approaching or developing into a confusional psychosis, progressive elevation of the disks, accentuation in the meningeal signs and cranial nerve palsies. Among the systemic manifestations are elevation of temperature, presenting an irregular curve, and leukocytosis. Recurrences of bleeding, with coincident recurrence of signs and symptoms, are not uncommon. They may occur during the initial attack in the character relapses. They may take the form of repeated attacks after a period of convalescence or after an apparent full recovery from a previous episode. Several recurrences may occur before a fatal attack. The recognition of the syndrome of spontaneous subarachnoid bleeding as differing from other forms of intracranial hemorrhage is essential, for the therapeutic indications differ. Treatment for spontaneous subarachnoid hemorrhage consists of repeated lumbar punctures to relieve symptoms of increased intracranial tension. Headache, the mental state, slowing of the pulse and papilledema are the guiding factors determining the need and frequency of this therapeutic measure. The prognosis is always grave, though not hopeless; satisfactory recoveries are frequent. The common anatomic changes are arteriosclerosis of the cerebral blood vessels, with or without frank aneurysmal defects. Inflammatory lesions of blood vessels are also capable of causing aneurysmal formation

with ultimate rupture and hemorrhage. Spontaneous subarachnoid hemorrhage may occur at any age (from 10 to 70), though it is most frequent between the ages of 25 and 40. Spontaneous subarachnoid hemorrhage is a disease entity that should be clearly understood not only by the neurologist but also by the internist, who is more likely to be called on to diagnose and treat the condition in its acute stage.

Spontaneous Cerebral Hemorrhage.—According to Bagley, spontaneous cerebral bleeding, whether from meningeal or intracerebral vessels, is often the result of rupture of an aneurysm, which may vary in size from a fraction of a millimeter to several millimeters in diameter. Arteriosclerosis is the most common cause of these aneurysms, but syphilis, trauma, bacteriologic reactions and congenital defects of the arterial walls are responsible for the lesion in some cases, or the bleeding may be due to a direct rupture of an arteriosclerotic or a congenitally weak vessel wall without aneurysmal formation. Careful neurologic examination and grouping is essential so that the proper type of therapeutic procedure may be chosen. In the treatment of these patients, three conditions must be considered: (1) a sterile meningitis produced by the irritating effect of blood in the cerebrospinal fluid; (2) increased intracranial pressure produced by intracerebral or extracerebral clot; (3) disturbance of the cardiorespiratory and thermoregulatory centers seen in extensive extravasations or large clots at the base with destruction of the basal ganglions and rupture into the ventricle. The patient with the third symptomatology cannot be benefited surgically. Theoretically, blood in the cerebrospinal fluid, as well as intracerebral and extracerebral clots following spontaneous cerebral rupture, should be removed, as in traumatic cases, in the hope of shortening the duration of the illness or preventing a fatality. In traumatic cases in which there has been a tear of a normal vessel wall there is within a short time complete occlusion of the vessel with little likelihood of recurrent bleeding, but the possibility of recurrent bleeding in these cases of spontaneous rupture in which the outflow of blood is stayed only by a recent clot makes the early removal of the blood a complex question. The removal of the blood, in some cases at least, must be undertaken only as a means of controlling the more serious symptoms, allowing the patient to go through a tedious course of meningeal irritation or increased intracranial pressure until such time as the clot in the ruptured vessel becomes organized and effectively plugs it. Subarachnoid drainage is useful in the cases in which the blood is washed into the cerebrospinal fluid but should never be undertaken in cases showing evidence of large blood clots. If a clot exists, the patient recovers spontaneously or the symptoms progress, demanding removal of the clot. Superficial localized clots can be removed through a craniotomy, a procedure in many cases contraindicated by the poor general condition of the patient and the possibility of recurrent bleeding, or by aspiration of the blood through a small trephine opening. Aspiration can be accomplished under local anesthesia but must be delayed until there is beginning cyst formation; in the author's cases it has not been followed by further bleeding. If the clot cannot be localized, serious symptoms of increased intracranial pressure may be relieved by a decompression. The author emphasizes that spontaneous cerebral hemorrhage is a common accident and may occur at any age; it must be taken into consideration in the differential diagnosis of a large number of intracranial disorders. Treatment in properly selected cases, especially in young persons, is followed by satisfactory results.

Brain Changes in Endocarditis.—Diamond reports that cerebral lesions in malignant endocarditis are extremely common. Of a consecutive series of thirteen fatal cases, all showed pathologic lesions in the brain even when definite clinical manifestations other than those usually regarded as of septic origin were absent. In some cases, however, the cerebral symptoms dominated the clinical picture. The types of lesion in the brain may be as varied as the clinical picture. They may be inflammatory or degenerative, circumscribed or diffuse, and the forms are frequently combined. Indeed, the lesions of the brain are only a partial manifestation of a general involvement of the central nervous system and of the whole body. They represent reactions of the nerve tissue to the infectious process that underlies malignant endocarditis. Bacteremia is usually present and is of especial interest in regard to its effect on the nerve tissue. Micro-organisms and septic emboli from the thrombo-ulcerative valves of the heart more or less flood the blood stream and become lodged in various organs, including the brain.

Toxic Encephalopathy in Measles.—Ferraro and Scheffer believe that a toxic factor is the basis of the cerebrospinal manifestation occurring in the course of measles, and that if this factor is extremely powerful, all the elements, neuroglia and nerve cells undergo changes dominantly of the degenerative type, while if the intensity of this factor is moderate, the action will be fought in the perivascular areas, thus stimulating the defensive power of microglia cells, which therefore proliferate around the blood vessels.

Action of Certain Drugs on Cerebrospinal Fluid and Blood Pressure.—Loman and Myerson describe experiments in which they demonstrated that epinephrine causes a rise in intracranial pressure, together with a rise of arterial and internal jugular venous pressures. The rise in intracranial pressure is probably due to the sharp rise in arterial pressure, since there is a vasoconstriction of the cerebral blood vessels. Amyl nitrite causes a rise in cerebrospinal fluid pressure with a fall of general arterial pressure and a rise in internal jugular venous pressure. Since amyl nitrite causes a vasodilatation of the blood vessels of the brain, it is believed that the rise in spinal fluid pressure follows the increased brain volume caused by vasodilatation. Solution of pituitary causes a rise in cerebrospinal fluid and internal jugular venous pressures. The arterial pressure drops. It is difficult to explain the rise in cerebrospinal fluid pressure in the case of this drug, since there is a conflict of opinion as to whether the vessels of the brain are dilated or constricted. Histamine causes a sharp rise in cerebrospinal fluid pressure with a moderate to slight drop of arterial pressure and no change in jugular venous pressure, thus forming an exception to the rule that cerebrospinal fluid pressure and intracranial venous pressure are linked together. The explanation may be that this drug has a definite secretory effect on the choroid plexus or that there may be a vasodilatation with an increased flow of blood through the brain, thus increasing the brain volume without increasing the internal jugular venous pressure. Caffeine sodium citrate causes a drop of cerebrospinal fluid pressure with little change in either the internal jugular venous or the general arterial pressure. The explanation may be that the diuretic effect of caffeine, by lessening the blood volume, causes this drop.

Delaware State Medical Journal, Wilmington

4: 99-118 (May) 1932

Evolution of Quackery. M. Fishbein, Chicago.—p. 99.
Arthritis of Spine, with Especial Reference to Chronic Type. P. N. Jepson, Philadelphia.—p. 108.
Some Oral Lesions Requiring Surgery. J. P. Wintrup, Wilmington. —p. 111.

Journal of Comparative Neurology, Philadelphia

54: 277-562 (April 15) 1932

Hindbrain of Opossum, Didelphis Virginiana. H. C. Voris and N. L. Hoerr, Chicago.—p. 277.
Development of Cerebellum in Amblystoma. O. Larsell.—p. 357.
Description of Central Nervous System of Porpoise (Tursiops Truncatus). O. R. Langworthy, Baltimore.—p. 437.
Development of Brain of Amblystoma (3 to 17 Mm. Body Length). R. C. Baker and G. O. Graves, Columbus, Ohio.—p. 501.

Journal of Immunology, Baltimore

22: 315-395 (May) 1932

*Immunity to Exotoxin of Streptococcus Hemolyticus Developed During Scarlet Fever, and Other Conditions as Shown by Skin Tests. G. Nemhauser, New York.—p. 315.
Purification of Concentrated Antitoxins. T. D. Gerlough and W. White, New Brunswick, N. J.—p. 331.
*Diphtheria Antibodies Transmitted to Offspring of Immune Guinea-Pigs. L. V. Richardson, Nashville, Tenn.—p. 351.
Attempts to Produce General or Local Hypersensitivity to Vaccinia Virus in Guinea-Pigs Actively or Passively Immunized. L. Buchbinder, New York.—p. 359.
Serum Sickness in Rabbits: III. Reactions of Body Temperature and Leukocytic Curves. O. E. Hagebusch, F. J. Robben, M. S. Fleisher and L. Jones, St. Louis.—p. 373.

Immunity to Exotoxin of Streptococcus Hemolyticus.—Nemhauser calls attention to the fact that since antitoxin

administered to persons with scarlet fever does not interfere with the development of antitoxic immunity in convalescence, the fear that no immunity will be developed is not a contraindication to the use of serum in severe cases of scarlet fever. Neither does the presence of tonsils seem to be any significant factor in predisposing to scarlet fever.

Transmission of Diphtheria Antibodies to Offspring.—Richardson made measurements of the diphtheria antibodies, antibacterial and antitoxic, in the serums of the offspring of guinea-pigs previously immunized with diphtheria filtrate. The data showed that diphtheria antibodies of the antibacterial sort as well as antitoxin are transmitted placentally. The proportion of antitoxin antibodies to nonantitoxin antibodies found in the serums of the offspring shortly after birth was comparable to that in the serums of their respective mothers. The serums of a number of families were studied over periods of sixty or more days following the births; the data of these tests showed that the amount of antibodies originally transferred by the mother is the important factor in determining the duration of the passive immunity of the offspring.

Journal of Infectious Diseases, Chicago

50: 377-572 (May-June) 1932

*An Institutional Outbreak of Poliomyelitis Apparently Due to Streptococcus in Milk. E. C. Rosenow, Rochester, Minn.—p. 377.
Incidence of Lactobacillus Acidophilus in Adults. N. Kopeloff, N. Blackman and B. McGinn, New York.—p. 426.
*Epidemic of Croupous Pneumonia Caused by Pneumococcus Type I. A. Strøm, Oslo, Norway.—p. 430.
*Sporotrichosis: Its Transmission to Plants and Animals. Rhoda W. Benham and Beatrice Kesten, New York.—p. 437.
Soluble Specific Substances from Yeastlike Fungi. H. D. Kesten and E. Mott, New York.—p. 459.
Biologic Action of Ultrahigh Frequency Currents: Further Studies. R. A. Hicks and W. T. Szymanowski, Pittsburgh.—p. 466.
*An Organism Intermediate Between Bacillus Typhosus and Bacillus Dysenteriae Shiga Isolated in Atypical Typhoid Fever: Report of Two Cases. A. H. Lazere and Virginia Breaks, Chicago.—p. 473.
Nonspecific Orchitis and Keratitis in Experimental Syphilis. E. E. Ecker and L. A. Weed, Cleveland.—p. 484.
Dissociation of Streptococcus Cardioarthritidis. Norma C. Styron and Sophie Spicer, New York.—p. 490.
Antigenic Relationships of Shigella Dispar. H. Welch and F. L. Mickle, Hartford, Conn.—p. 524.
Growth of Erysipelas and Scarlet Fever Streptococci on Hemoglobin Chocolate Agar. C. C. Saelhof, Chicago.—p. 536.
Metabolism Studies on Brucella Group: III. Viability in Aqueous Solutions. C. E. ZøBell and Margaret H. ZøBell, San Francisco.—p. 538.
Reaction of Rabbits Following Inhalation of Type III Pneumococci. E. G. Stillman, New York.—p. 542.
Correlated Fermentative and Antigenic Variation in Certain Strains of Morgan's Bacillus. L. C. Havens and Anne George Irwin, Montgomery, Ala.—p. 550.
Agglutinin-Absorption Studies on Brucella. W. N. Plastridge, Storrs, Conn., and J. G. McAlpine, Caracas, Venezuela, South America.—p. 555.

Milk-Borne Poliomyelitis.—Rosenow reports a study of an epidemic of acute poliomyelitis at a midwestern college. A pleomorphic streptococcus having a peculiar infecting power, specific immunologic properties and characteristic cataphoretic velocity was isolated from the throats and spinal fluid in frank and abortive cases, from the throats of a large proportion of well students and from the milk of healthy cows in the dairy at the time of the epidemic, but not after the epidemic had subsided and not at the time of the epidemic or later from the throats of student volunteers, or from the milk supply at a neighboring, unaffected college. The epidemic was traced to raw milk from which large numbers of the "poliomyelitis" streptococci were isolated. New cases abruptly ceased to occur after the use of the raw milk was discontinued. There occurred a marked reduction of positive skin reactions to the "poliomyelitis" streptococcus during convalescence, and in the well students, especially males, six weeks after the epidemic had subsided, whereas the incidence remained the same in the students at the unaffected college at the time of the epidemic and six weeks later. The serum of persons who reacted negatively to intradermal injections of the "poliomyelitis" streptococcus, irrespective of whether they had had poliomyelitis, and the poliomyelitis antistreptococcus serum used in treatment neutralized the toxigenic substance to a greater degree than the serum of persons who reacted positively and the serum of the normal horse. The serum from the convalescents and that from persons who had had poliomyelitis a long time before had a more marked specific potential-lowering effect on the "poliomyelitis" streptococcus than the serum of persons who had not had poliomyelitis. The poliomyelitis antistreptococcus serum seemingly had a beneficial action in the treatment of the patients.

Croupous Pneumonia Caused by Pneumococcus Type I.—Strøm reports that an epidemic of lobar croupous pneumonia in an orphanage was caused by pneumococcus type I. Pneumococcus type I was found in the sputums and in cultures from the nose and throat of the patients during illness and up to seventy-three days after the crisis. In one case it was found in a culture from the nose and throat four days before the onset of the disease. Of the contacts, 33.3 per cent were found to be carriers during the height of the epidemic, and 16.9 per cent two and one-half months later. The strains from the patients were more virulent in mice than those from the carriers. The disease was more prevalent among the older boys than among the younger ones, presumably because the former represented a more rural population than the latter.

Sporotrichosis.—Benham and Kesten describe experiments in which they observed that Sporotrichum schenckii produced in the monkey a nodular sporotrichosis simulating the lymphangitic type of infection in man. The human disease was transmitted to carnations, in which it produced a bud rot similar to that caused by Sporotrichum poae. After living saprophytically or parasitically in plants, Sporotrichum schenckii retained its virulence for animals.

Organism Isolated in Atypical Typhoid.—Lazere and Breaks isolated a bacillus from the blood of two children in the same family, who apparently had the same infection, an atypical typhoid. Bacteriologically and serologically, this bacillus was intermediate in its characteristics between the typhoid bacillus and the Shiga dysentery bacillus.

Laryngoscope, St. Louis

42: 335-415 (May) 1932

Early Recognition of Otitic Intracranial Complications. V. V. Wood, St. Louis.—p. 335.
Mastoiditis and Nephritis: Case Report. C. E. Kinney, Cleveland.—p. 356.
Sinus Thrombosis. A. J. Guerinot, Pittsburgh.—p. 359.
Von Recklinghausen's Disease, with Report of Case Involving External Auditory Canal. H. S. Wieder, Philadelphia.—p. 364.
Otologic Sepsis Following Submucous Resection of Nasal Septum. L. C. Menger, Brooklyn.—p. 371.
Plastic Surgery of Saddle Nose. M. W. Mootnick, New York.—p. 376.
Tonsillectomy and Upper Respiratory Disease (Common Cold) in Adults. W. M. Gafafer, Baltimore.—p. 385.
Unusual Papilloma of Larynx. R. T. Smith, Natchez, Miss.—p. 390.
New Apparatus for Treating Singers and Public Speakers. B. L. Bryant, Cincinnati.—p. 393.

Maine Medical Journal, Portland

23: 93-120 (May) 1932

Observation on Management of Ureteral Calculi. C. N. Peters, Portland.—p. 101.
Diphtheria Immunization in Maine. W. L. Holt, Augusta.—p. 109.

Medical Bull. of Veterans' Adm., Washington, D. C.

8: 331-430 (May) 1932

Treatment of Diabetes Mellitus. P. B. Matz.—p. 331.
*Surgical Treatment of Pulmonary Tuberculosis. A. S. Broga and E. S. Welles.—p. 351.
Suicide. H. E. St. Antoine.—p. 369.
Essential Hypertension. F. J. Herbig.—p. 377.
Circulatory Disturbances of Lower Extremities. L. C. Jensen.—p. 381.
Nail Changes in Pulmonary Tuberculosis Associated with Mental Diseases. C. L. Whitmire.—p. 385.
Leukocytosis in Tuberculosis. C. A. Anderson.—p. 395.
Dental Clinics. R. J. Hamilton.—p. 397.

Surgical Treatment of Pulmonary Tuberculosis.—Broga and Welles state that with a skilful operator the operation of pneumolysis is attended with little discomfort or danger to the patient. Many distinctly unfavorable pneumothorax cases may be converted into decidedly favorable ones as a result of the marked increase in collapse with resulting closure of cavities. Pneumolysis should be resorted to as soon as it is determined that an unfavorable adhesion will stretch no further without undue pressure. Delay may allow a thin-walled cavity to develop heavy walls and become highly resistant to closure, even after separation of the adhesions. Also, continued stretching may cause adhesions to become tough and tendinous.

Development of fluid is to be expected. This is usually slight in amount and seldom interferes with the progress of the case. Danger from hemorrhage may be greatly reduced by slow, careful progress, by avoidance of thick adhesions, and by the use of a low dull-red cauterizing heat. Serous oozing is to be expected and is of no consequence. Only thin, string or sheet-like adhesions are suitable for cauterization. Short or thick ones may contain sizable blood vessels or even portions of lung tissue or extensions of pulmonary cavities. Also, the proximity of the cautery to the pleura together with an extensive cauterized surface may cause much annoying pleurisy.

Medical Journal and Record, New York

135: 461-504 (May 18) 1932

Experiments on Influence of Noise on Digestion, and Counteracting Effects of Various Food Agencies. D. A. Laird, Hamilton, N. Y. —p. 461.
Large Renal Calculi: Clinical Study. W. S. Pugh, New York.—p. 464.
Interpretation of Leukocyte, Differential Count, and the Schilling Nuclear Shift in the Blood. S. Gorsky, Philadelphia.—p. 468.
End-Results in Tonsillectomy by Electrocoagulation Due to Improved Technic. J. A. Haiman, New York.—p. 471.
Light Magic. H. Goodman, New York.—p. 473.

135: 505-548 (June 1) 1932

Safeguarding the Industrial Worker. A. W. Hammer, Philadelphia.—p. 505.
One Thousand Cases of Spinal Anesthesia, Without a Death Attributable to the Anesthetic. M. Weinstein and J. P. McHugh, Long Island City, N. Y.—p. 507.
Agranulocytic Angina. W. Spielberg, New York.—p. 515.
Septic Parotitis in Gastric Hemorrhage. I. R. Jankelson, Boston.—p. 517.

Michigan State M. Society Journal, Grand Rapids

31: 363-436 (June) 1932

*Intracranial Injuries of Fetus. F. L. Adair, Chicago.—p. 363.
Few Skin and Mucous Membrane Lesions of Interest to General Medicine. G. H. Belote, Ann Arbor.—p. 368.
Behavior Problems in Children: Practical Consideration of Their Analysis and Treatment in Practice. B. M. Hamil, Detroit.—p. 373.
Intestinal Obstruction: Review of Ninety-Five Cases. H. E. Veldman and F. C. Warnshuis, Grand Rapids.—p. 379.
Convalescent Serum: Its Use in Treatment of Acute Communicable Diseases. E. E. Martmer, Detroit.—p. 383.
Appendicitis. W. W. MacGregor, Detroit.—p. 386.
Beneficial Effect of N-Propyl Disulphide in Polycythemia Vera: Case Report. E. A. Sharp, E. C. Vonderheide and R. M. McKean, Detroit. —p. 394.
Allonal Poisoning: Case. N. W. Larkum, Lansing.—p. 395.
Effect of Evaporated Milk on Incidence of Rickets in Infants. D. J. Barnes, Detroit.—p. 397.
Chyle Cyst of Mesentery: Report of Case. A. L. Arnold, Jr., Owosso. —p. 399.
Abdominal Operations for Femoral Hernia. G. L. Coan, Wyandotte. —p. 401.
A Trip to Russia: August and September, 1931. R. McGregor, Saginaw. —p. 404.
Michigan's Department of Health. C. C. Slemons, Lansing.—p. 409.
Victor C. Vaughan. C. H. McIntyre.—p. 410.

Intracranial Injuries of Fetus.—Adair enumerates the methods of prevention of brain injuries in infants thus: (1) Prenatal care by which attempts are made to bring the patient to term with the fetus in the proper position, and predetermining so far as possible the appropriate method of delivery; (2) proper management during labor, with conservative conduct of the first stage, preservation of the membranes, the prevention of violent labors by the use of uterine sedatives and anesthetics if necessary, the avoidance of too prolonged pressure on the fetal head in the birth canal or on the perineum, the recognition of signs of fetal distress and the completion of the delivery when conditions are favorable; (3) avoidance of undue occipital depression by its pressure against the pubic arch especially by vigorous attempts to protect the perineum (also avoidance of delivering the aftercoming head in breech extraction and following version by using the occipital bone as the fulcrum of a lever in rotating and delivering the head over the perineum); (4) the restriction of the use of artificial means of delivery, to strict indications on the part of the mother or fetus when favorable conditions are present; (5) the selection of the proper time and method for artificial delivery and the use of good technic, and (6) the recognition of the fact that many of the infants which appear asphyxiated and do not breathe promptly or properly are in many instances traumatized and should be treated gently and not by strenuous attempts at stimulating respiration.

Minnesota Medicine, St. Paul

15: 295-378 (May) 1932

Compulsory Sickness Insurance. J. S. Gilfillan, St. Paul.—p. 295.
Cooperation. C. E. Rudolph, Minneapolis.—p. 305.
Surgical Considerations of Angina Pectoris. A. W. Adson, Rochester. —p. 310.
Aids in Diagnosis of Hip Joint Disorders. G. A. Williamson, St. Paul. —p. 312.
Thrombo-Angiitis Obliterans: Report of Fifty-Two Cases. A. G. Dumas and E. T. Evans, Minneapolis.—p. 320.
Skin Tests in Chronic Ulcerative Colitis. J. C. T. Rogers and J. A. Bargen, Rochester.—p. 328.
Obstructive Jaundice from Surgical Standpoint. W. Walters, Rochester. —p. 333.

Missouri State M. Assn. Journal, St. Louis

29: 239-286 (June) 1932

*Acute Hemorrhagic Mastoiditis: Report of Case. C. S. Smith, Springfield.—p. 239.
Rehabilitation of Tuberculous Patients. G. D. Kettelkamp, Koch.—p. 241.
Pneumothorax as Home Treatment. L. Schlenker, St. Louis.—p. 245.
Cancer Survey of St. Louis and St. Louis County, Missouri, 1931. C. C. Little, New York.—p. 249.

Acute Hemorrhagic Mastoiditis.—Smith calls attention to the fact that acute hemorrhagic mastoiditis is a type in which the pathologic process is limited to the interior of the blood vessels, where septic thrombi are formed. It is characterized by a condition of sepsis with prostration and high temperature. The blood shows a steady reduction in the hemoglobin and red blood cells. The roentgenogram is negative. The treatment is always surgical. Because intracranial complications, especially lateral sinus thrombosis, tend to occur early, the operation should be performed as soon as the diagnosis is made.

New England Journal of Medicine, Boston

206: 1075-1124 (May 26) 1932

Simple and Inexpensive Method for Caring for Patients on Permanent Urinary Drainage. E. L. Peirson, Jr., Salem, Mass.—p. 1075.
Gunshot Wound of Ureter. S. N. Vose, Boston.—p. 1075.
Report of Unusual Case of Large Diverticulum of Bladder in Infant. E. J. O'Brien, Boston.—p. 1076.
*Use of Radium and Roentgen Rays in Management of Cancers of Genito-Urinary Organs. A. L. Dean, Jr., New York.—p. 1078.
*Invaginated Meckel's Diverticulum Causing Partial Obstruction of Ileum. J. C. McCann, Worcester, Mass.—p. 1089.
Suction Tonsillectomy: Comments on Waring Suction Technic. Z. W. Colson, Lawrence, Mass.—p. 1093.
Isaac Jadaeus and His Times. H. Morrison, Boston.—p. 1094.
Recent Progress in Physiology. P. G. Stiles, Boston.—p. 1100.

Cancer of Genito-Urinary Organs.—Dean considers the use of radium and the roentgen rays an important adjunct to surgery in the management of renal adenosarcoma and adenocarcinoma. It is probable that bladder cancers can be controlled more effectively with interstitial irradiation than by surgery alone. After irradiation the operative mortality is lower and the end-results are better. About 15 per cent of prostate cancer can be controlled by irradiation. There is a field of usefulness for irradiation in the treatment of superficial penis cancer. Beyond this, irradiation is a valuable adjunct to surgery. The treatment of teratoma testis by irradiation is so successful that surgery should be discarded except for the removal of an irradiated testis.

Invaginated Meckel's Diverticulum.—According to McCann, a survey of the literature reveals that simple inversion of a Meckel's diverticulum is a rare phenomenon. He presents a review of ten cases reported in the literature, and a case of inversion in which he operated. Persistent diverticula, which are found in 2 per cent of necropsies, give rise to diverse complications. Intestinal obstruction is the most common and is produced frequently by intussusception of the intestine secondary to invagination of a diverticulum. This is the causative mechanism in 7 per cent of obstructing intussusceptions and carries an operative mortality of from 50 to 60 per cent. Simple uncomplicated inversion is rare, and in the author's case the serious complication of intussusception was probably averted by the paramesenteric location of the structure, and fortuitous surgical intervention. Chronic inflammation had agglutinated the serosal surfaces at the base of this inverted diverticulum, forming a polypus-like sac within the lumen of the ileum, which produced symptoms of partial obstruction. This case presents proof of the hypothesis long held that some polypi of the small intestine take origin from an inverted Meckel's diverticulum.

New York State Journal of Medicine, New York

32: 577-642 (May 15) 1932

The Enema: Its Use and Abuse. R. Finkelstein, Brooklyn.—p. 577.
Psychopathology and Organic Disease. S. E. Jelliffe, New York.—p. 581.
Early Medical History of Mohawk Valley. E. Kellert, Schenectady.—p. 588.
Sporotrichosis in New York State. J. G. Hopkins and R. W. Benham, New York.—p. 595.
Scarlet Fever Case-Finding. F. W. Laidlaw, Middletown.—p. 601.
Ectopic Kidney: Case. A. Strachstein, New York.—p. 603.

Psychoanalytic Quarterly, Albany, N. Y.

1: 1-189 (April) 1932

Libidinal Types. S. Freud.—p. 3.
Sense of Smell in Neuroses and Psychoses. A. A. Brill, New York.—p. 7.
Transient Hypomania. B. D. Lewin, New York.—p. 43.
Animism and Religion. G. Róheim, Budapest, Hungary.—p. 59.
Is There a Mental Hygiene? F. E. Williams, New York.—p. 113.
Outline of Clinical Psychoanalysis. O. Fenichel, Berlin, Germany.—p. 121.

Radiology, St. Paul

18: 879-1050 (May) 1932

*Irradiation in Treatment of Hyperthyroidism. G. E. Pfahler, Philadelphia.—p. 879.
Part III. Findings Observed in Gastro-Intestinal Tract. The Cole Collaborators, New York.—p. 886.
The National Institute of Health. J. E. Ransdell, Washington, D. C.—p. 942.
Teaching Radiology to Undergraduate Students. H. K. Pancoast, Philadelphia.—p. 948.
The Teaching of Radiology to Interns. J. T. Case, Chicago.—p. 957.
The Postgraduate and Graduate Teaching of Radiology. A. U. Desjardins, Rochester, Minn.—p. 961.
Statistical Study of Radiologic Teaching in Medical Schools of United States and Canada. L. J. Menville, New Orleans.—p. 967.
Radiologic Service in United States: Report by the Council on Medical Education and Hospitals, American Medical Association (Reprinted).—p. 988.
Management of Radiologic Practice in Hospitals. D. S. Beilin, Chicago.—p. 1001.
The Radiologist as a Consultant. J. F. Herrick, Ottumwa, Iowa.—p. 1011.
Electrical Definitions. Final Report of Subcommittee Number Thirteen—Radiology.—p. 1014.
Effects of Ultraviolet, Roentgen and Cathode Rays on Spores of Mucoraceae. B. J. Luyet, New York.—p. 1019.
*Diagnostic Pneumothorax: Aid in Diagnosis of Pleural Tumors. W. B. Faulkner, Jr., and E. C. Faulkner, San Francisco.—p. 1023.
Mediastinal Pleurisy: Case Reports and Roentgen-Ray Diagnosis. H. Snure, Los Angeles.—p. 1028.

Irradiation in Treatment of Hyperthyroidism.—Pfahler states that a review of the literature shows a progressively increasing recognition of the value of both roentgen rays and radium in the treatment of thyrotoxicosis. The results obtained by irradiation are equal to those obtained by operation, with less shock or risk to the patient. The basal metabolism can be gradually reduced to normal, and there is practically no danger of producing hypothyroidism. Tetany has not developed in any of the author's cases. One can assume that no harm has been done to the normal parathyroid. The author believes that not surgery, nor irradiation, nor medication can be depended on to cure all cases and no one is so much superior that it can be recommended to the exclusion of the other two. No definite rules can be laid down at present for the selection of the method for the individual patient. It is the general opinion of radiologists that in all cases which are not seriously involved by mechanical pressure, or so acute as to make delay of a month dangerous, the patients should be treated by irradiation. Irradiation and every valuable method of medication can certainly be combined to advantage. If there is no definite improvement after two or three months, surgery can still be used. The delay that always precedes operation can be used to advantage in this manner. When irradiation fails, surgery can still be used; when surgery fails, irradiation can be used. Medication and the advice of the internist are of value in all cases, but there will remain a small number in which all methods will fail.

Diagnostic Pneumothorax.—According to the Faulkners, diagnostic pneumothorax is safe, relatively easy to perform, and does not aggravate the patient's condition. It is of definite value in the differentiation of parietal pleural tumors from those within the lung and mediastinum. It furnishes essential information in the selection of chest cases for operation; and it indicates the type of anesthesia and surgical approach that will be best fitted to the individual case.

Southern Medical Journal, Birmingham, Ala.

25: 559-678 (June) 1932

Cancer of the Breast. F. J. Kirby, Baltimore.—p. 559.
Cesarean Section: Study of Twenty Years' Experience. P. W. Toombs, Memphis, Tenn.—p. 566.
Treatment of Empyema in Small Children. W. R. Moore, St. Joseph, Mo.—p. 574.
Pathologic Changes During Early Stages of Vitamin A Deficiency in Albino Rat: Preliminary Report. H. S. Thatcher and B. Sure, Little Rock, Ark.—p. 581.
Cytologic Examination of Nasal Smear in Differential Diagnosis of Allergy and Infection: Preliminary Report. I. S. Kahn and B. F. Stout, San Antonio, Texas.—p. 582.
Chorio-Epithelioma and Hydatidiform Mole: Report of Four Cases. B. T. Beasley, Atlanta, Ga.—p. 585.
Treatment of Cardiac Dyspnea. T. R. Harrison, Nashville, Tenn.—p. 591.
Roentgen Examination of Heart in Left Auricular Enlargement. F. B. Bogart, Chattanooga, Tenn.—p. 596.
Offensive and Defensive Reactions in Acute Infections of Mucous Membrane. H. J. Howard, St. Louis.—p. 602.
*Ptosis and Torsion of Gallbladder. W. R. Meeker, Mobile, Ala., and J. O. Lisenby, Atmore, Ala.—p. 609.
*Blood Picture in Sickle Cell Anemia. L. W. Diggs, Memphis, Tenn.—p. 615.
Contact Dermatitis and Eczema: Report of Nine Cases. H. J. Rinkel, Oklahoma City.—p. 621.
Personality Pathology. S. R. Roberts, Atlanta, Ga.—p. 628.
Recurrent Affective States: Their Differentiation from Psychoneuroses. L. B. Hohman, Baltimore.—p. 635.
Colossal Emphysema of Upper Extremities: Foreign Body in Lungs. E. W. Carpenter, Greenville, S. C.—p. 640.
Receptacle for Obtaining Specimens of Urine from Infants and Untrained Children. H. Hailey, Atlanta, Ga.—p. 640.
Observations on Malaria Incidence in Some Unsanitated River Villages in the Republic of Panama, with Especial Reference to Proposed Construction Projects in Canal Zone. H. C. Clark and W. H. W. Komp, Ancon, Panama Canal.—p. 642.
Therapy of Chronic Malarial Splenomegaly. M. Ascoli and U. Diliberto, Palermo, Italy.—p. 647.
Malaria Control Work in West Africa. M. A. Barber, New York.—p. 649.
Malaria Control and Anopheles Control Measures of Past and Future. J. A. LePrince, Memphis, Tenn.—p. 651.
Malaria in Mississippi and Adjacent States. F. L. Hoffman, Wellesley Hills, Mass.—p. 657.
Screening in Sharkey County. A. K. Barrier, Rolling Fork, Miss.—p. 662.
Public Health a Business Proposition. H. W. Stanley, Dallas, Texas.—p. 665.

Ptosis and Torsion of Gallbladder.—According to Meeker and Lisenby, cholecystoptosis results primarily from congenital anomalous attachments of the gallbladder. Further pathologic changes are usually dependent on ptosis. The most serious complication that can happen to a floating gallbladder is that of complete torsion. A case of torsion observed by the authors illustrates the main features of this condition exemplified in the group of twenty-five reported cases: (1) previous history of "bilious" attacks; (2) the failure of preoperative diagnosis; (3) the age and sex, elderly females; (4) the sudden onset and picture of acute condition of the abdomen; (5) the gross pathology, a greatly enlarged freely floating pedicled gallbladder of purplish black color, thickened edematous walls, content of bloody bile and clots and no stones present, and (6) easy cholecystectomy with complete recovery.

Blood Picture in Sickle Cell Anemia.—Sixty-four cases of sickle cell anemia reported in the literature and ten cases observed in Memphis are analyzed by Diggs in regard to the blood picture. The characteristic features of the blood picture in active sickle cell anemia are (1) the presence of sickled cells in moist preparations; (2) signs of red blood cell destruction (poikilocytosis, degenerating forms, microcytes, increased serum bilirubin, negative direct van den Bergh reaction and positive indirect reaction; urobilinuria, phagocytosis of erythrocytes by large mononuclears), and (3) signs of increased regenerative activity on the part of the bone marrow (megaloblasts, intermediary forms, nucleated red blood cells, nuclear fragments of all types, diffuse basophilia, macrocytes, increased reticulocytes, leukocytosis with a shift right and left, increased platelets). Sickling without anemia, hemolytic anemia without sickling, or secondary anemia in association with the sickle cell trait are to be distinguished from true sickle cell anemia. Typical sickled cells, although striking and unmistakable in fixed smears and fresh moist preparations from some cases, are the exception rather than the rule. The average red blood cell in sickle cell anemia is smaller than normal. The cell volume

is decreased out of proportion to the decrease in the red blood cell count and hemoglobin. The color index is variable but usually below 1. The erythrocytes in sickle cell anemia are more resistant to hypotonic solutions of sodium chloride than normal.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Dermatology and Syphilis, London

44: 233-296 (May) 1932

The Senear-Usher Type of Pemphigus. J. T. Ingram.—p. 233.
Pityriasis Rosea. G. H. Percival.—p. 241.
Successful Inoculations of Semen of Latent Syphilitic Patients. G. Kertesz and V. Goldner.—p. 253.
Notes on a Case of Colloid Degeneration of Skin (Colloid Milium). J. M. H. Macleod, J. E. M. Wigley and I. Muende.—p. 257.

British Journal of Physical Medicine, London

7: 21-36 (May) 1932

*Ultraviolet Treatment of Miners' Nystagmus, with Notes of Six Cases. F. O'Sullivan.—p. 23.
Cure of Incapacitating Chronic Arthritis with Pistany Mud. L. Schmidt. —p. 25.
Spas and Spa Treatment in Europe. M. B. Ray.—p. 26.

Ultraviolet Treatment of Miners' Nystagmus.—The lamp O'Sullivan uses in the treatment of miners' nystagmus is the quartz mercury vapor type, in preference to the carbon arc. The patient starts with three minutes of exposure, at 1 meter, increasing daily up to five minutes, and later to fifteen minutes, for a period of five or six weeks if necessary. The first sign the author has observed, when carrying out treatment, and which encouraged him to persevere, was that in all cases the conjunctival hyperemia observed in most cases of early miners' nystagmus cleared up very quickly. In nearly all cases under treatment, the patients were back at work within eight weeks, with little or no symptoms or physical signs. The ultraviolet irradiation was usually given as a general body bath. A few patients were treated by short local exposures, the patient wearing no goggles but keeping the eyes closed. Ultraviolet irradiation alone will not give immediate benefit, so long as some underlying focus of infection is allowed to persist. But in cooperation with other remedial measures, it exerts a definite curative influence on miners' nystagmus. The author reports six cases of miners' nystagmus treated successfully by ultraviolet irradiation.

British Journal of Radiology, London

5: 385-480 (May) 1932

*Treatment of Chronic Myeloid Leukemia. A. Piney and Jean S. Riach. —p. 393.
Postmortem Report on Case of Chronic Myelogenous Leukemia Treated by Radiation. R. Ogilvie.—p. 428.
Quality and Significance of Scattered Radiation Produced in Water Subjected to Beams of Roentgen Rays and Gamma Rays. W. J. Rees and L. H. Clark.—p. 432.
Action of Radium D, E and F with Colloidal Bismuth on Growing Tumors. A. G. C. Taylor.—p. 446.
Case of Occult Tail. R. J. Reynolds.—p. 457.
Some Experiments in Projection of Splenoidal Sinus Through Orbit. F. Hernaman-Johnson.—p. 458.
Thoracic Fibroma: Death from Gastric Carcinoma: Case. A. J. H. Iles. —p. 460.

Treatment of Chronic Myeloid Leukemia.—In the treatment of chronic myeloid leukemia, Piney and Riach practice preliminary roentgen exposure of the long bones, followed by irradiation of the spleen. This produces an even greater fall of abnormal cells than is the case if the spleen alone is treated. It is usual to treat persons with chronic leukemic myelosis until the blood picture is fairly satisfactory and the patient is feeling well; then it is often thought to be sufficient to instruct the patient to report again if at any time he does not feel in good health. It is generally found that, when the patient returns complaining of malaise, the characters of the blood picture have gravely deteriorated and further treatment is essential. The authors were particularly fortunate in two of their cases, since it was possible to examine the patients' blood at least once a week. It was found that the leukocytes, and particularly the abnormal forms, gradually rise from the level to which they had been reduced by treatment, and that this increase continues slowly but persistently for several weeks, or even months, before the patient feels at all unwell. Furthermore, during this period of deterioration of the blood picture, no ordinary clinical signs of the progress of the malady can be detected. When the number of leukocytes rose to 60,000 or 70,000 per cubic millimeter the treatment was repeated, even though the patient made no complaint of ill health. The literature contains many statements to the effect that each relapse is more difficult to treat satisfactorily than was the preceding attack. This is probably due to the excessively long intervals between the courses of treatment. This, of course, is inevitable if irradiation is undertaken only when the patient notices some signs of the disease. The authors contend that it is essential to observe the blood picture at very short intervals throughout the patient's life, and to undertake treatment in early hematologic relapses before the clinical relapse has manifested itself.

Edinburgh Medical Journal

39: 285-348 (May) 1932

*Studies on Blood and Tissue Reactions: I. Notes on Technic of Blood Examination. W. F. Harvey and T. D. Hamilton.—p. 285.
*Genesis of Blood Platelets. C. H. Watson.—p. 311.
Treatment of Pernicious Anemia with Campolon. R. M. Murray-Lyon. —p. 328.

Blood and Tissue Reactions.—Harvey and Hamilton describe experiments in which they demonstrated that there is not a large error in making a single leukocyte total count provided the necessary precautions are taken. The differential cell count on a well made, and to a surprising extent on an ill made, film is significantly valid for diagnostic purposes. There is evidence of long-wave diurnal oscillation of leukocyte numbers and proportions, but not sufficient evidence of a superimposed periodic short-wave type of fluctuation. All sorts of factors, such as sleep, posture, heat and cold, muscular exercise, locality of examination, digestion and simple ingestion may be regarded as traumas and may produce leukocytic variation of greater or less duration and may combine to enhance or to mask the variation due to any one factor singly.

Genesis of Blood Platelets.—According to Watson, the reticulocytes are the least prone to fragmentation of all the erythrocytes. The erythrocytes make their exit from the circulating blood mainly by a process of fragmentation. By a variety of processes, which cause partial laking, the author shows that the erythrocytes of rabbits which have been damaged in vitro by the injection of phenylhydrazine contain a granular material similar in every respect to the granular material of platelets. He shows that the damaged erythrocytes have a marked tendency to fragment, also that under certain conditions the fragments have a basophilic ground-substance in which is variously distributed pink-staining granular material. The fragments of effete or damaged erythrocytes correspond in every detail to the bodies known as blood platelets.

Indian Medical Research Memoirs, Calcutta

No. **23:** 1-378 (March) 1932

The Life Line of the Thyroid Gland. R. McCarrison and K. B. Madhava.—p. 3.

International Journal of Psycho-Analysis, London

13: 1-176 (Jan.-April) 1932

Psychoanalysis of Primitive Cultural Types. G. Roheim.—p. 1.

Journal of Laryngology and Otology, Edinburgh

47: 297-368 (May) 1932

*Indications for Radical Operation in Chronic Middle Ear Suppuration. S. H. Mygind.—p. 297.
*Some Postoperative Results of Radical Mastoid Operation in Children: Postoperative Otorrhea. N. Asherson.—p. 317.

Chronic Middle Ear Suppuration.—Mygind believes that the greatest difficulty in the treatment of chronic middle ear suppuration lies in the treatment of children, in whom radical operation, as also with unintelligent patients, generally gives unsatisfactory results. This also holds good for the simple resection or preferably the Bárány partial resection, which, when obliged to operate, one often has to make do. In such cases it is not enough to provide only for conventional adenotomy. Children should be submitted also to comprehensive general medical examination. Their hemoglobin, their Wasser-

mann reaction, their Pirquet reaction, their rickets, their family predisposition to ear trouble, catarrhs and tuberculosis, the state of their homes and their diet must all be investigated, and all energy directed in the right direction in order to invigorate their general well being. This demands much labor and a lengthy stay in the hospital, often accompanied by Finsen light treatment, baths and open air treatment. But it is here that action must be taken, for it is often in childhood that middle ear disease begins its fateful course even if it is much later on that it first shows itself in earnest, often as a serious inconvenience, sometimes as invalidism and, in certain, generally sudden and dramatic cases, terminating fatally.

Postoperative Otorrhea.—Asherson tabulates the results in 100 consecutive cases of the radical mastoid operation and conservative mastoid operation in children. In a purely tympanic infection, the mastoid being healed, with no granulations in the tympanum, ionization with zinc sulphate will effect a rapid cure. Attention to the nasopharynx is essential. Thus adenoids, septic tonsils and sinusitis require attention. This is an essential part of the treatment. When granulations occur in the tympanum they should be cauterized with 50 per cent solution of silver nitrate, and after a few days 1 per cent iodine powder should be insufflated regularly. Hypertrophied granulations or polypi require removal by scraping, snaring or curetting. The base should be cauterized with silver nitrate. This applies to the mastoid part of the excavation also. If there is much bone disease still present, or any atresia of the meatus present, further treatment by operation is indicated and the infective bone disease should be eradicated. Among the accessory methods to be attempted in highly resistant cases are heliotherapy, ionization with very weak solution of silver nitrate or, after thorough cleansing, packing the cavity with strips of gauze impregnated with bismuth iodoform paraffin paste. The discharge persisting after the radical mastoid operation is usually an extremely chronic one, and reaction to treatment is disappointing in a large majority of cases, and further operation is usually called for unless the site of origin is localized to one or two definite spots.

Journal of State Medicine, London

40: 249-310 (May) 1932

Social Burden of the Rheumatic Diseases. D. M. Connan.—p. 249.
*Prevention and Treatment of Industrial Rheumatism. M. B. Ray.—p. 255.
Organization of Treatment for Industrial Rheumatism. A. R. Neligan.—p. 274.
Methods for Determination of Carbonaceous Waste Gases and Soot in Air. J. Hirsch.—p. 300.

Prevention and Treatment of Industrial Rheumatism.—Ray calls attention to the fact that in dealing with industrial rheumatism it is of the greatest importance that patients should be able to obtain treatment at the earliest possible moment after the first signs of the malady. If, in consequence of this, time has to be lost in attending an institution, treatment will be deferred with the grave risk of complete incapacity. Few complaints show better results than fibrositis or muscular rheumatism if treated early enough. In establishing the clinic for rheumatism, one of the main objects of the British Red Cross Society was the provision of evening treatment for men and women after working hours. Analysis of the social service records of those patients who have finished their treatment during the year 1931 shows that 40 per cent of the 1,012 men and 51 per cent of 1,463 women remained at work during the period they were attending the clinic. In industrial rheumatism, preventive measures are mainly applicable to the conditions of employment. Dampness and chills are a fruitful source of much invalidity from muscular rheumatism and fibrositis. Workers who are exposed to continual wetting and subsequent chilling should be provided with adequate drying rooms and opportunities for changing into dry clothing. In case of joint disabilities, so many of which are connected with certain trades, an endeavor should be made, when practical, to afford a change of occupation when signs of arthritis appear. It is fully recognized that in the majority of instances this is impossible. Timely treatment by physical methods may do much to prevent any further development, but it must be in the earliest stages. Once bony changes have taken place, little in the way of a permanent cure can be effected. As regards the individual himself, the ordinary rules of hygiene should be strictly followed. Septic teeth and tonsils should be dealt with. In the type of patient who is predisposed to rheumatism, much may be done by the use of baths to tone up the skin and render it less sensitive.

Journal of Tropical Medicine and Hygiene, London

35: 129-144 (May 2) 1932

Intestinal Bilharziasis in St. Kitts, B. W. I. S. B. Jones.—p. 129.
Results of Successive Bites of an Infected Tsetse Fly. J. F. Corson.—p. 136.
Diabetes Mellitus with Anarthria and Signs of Irritation of Seventh Nerve Nucleus: Case. E. C. Spaar.—p. 137.

Lancet, London

1: 1027-1078 (May 14) 1932

*"Fallen Idols." The Case of Appendicitis. J. Berry.—p. 1027.
*Mode of Action of Vitamin D: The "Parathyroid" Theory: Clinical Hypervitaminosis. L. J. Harris.—p. 1031.
Treatment of Infections of Urinary Tract by Ketogenic Diet. H. Cabot.—p. 1038.
Meningitis and Septicemia Due to Morgan's No. 1 Bacillus. R. Gittins and J. C. Hawksley.—p. 1040.
*Cerebrospinal Fluid Pressures in Syphilis. T. F. Hewer.—p. 1042.

Appendicitis.—Berry does not find any evidence for the statements that appendicitis is more common than it used to be and that the type of infection has become more virulent, and he does not believe that they are true. That the disease is recognized and diagnosed more frequently, and that active treatment is adopted far more often, there can of course be no shadow of doubt. That deaths are more common now than formerly is apparently an undoubted fact. The author believes that there should be introduced a little more sanity into the present-day treatment of acute appendicitis, a little more discrimination and judgment in the choice of operation and when and how it should be performed when it is really necessary, a little less reliance on the hard-and-fast rule, adopted by so many, of operating at any and all stages—a rule so easy to follow but often so disastrous to the patient. He has spent half a century in watching and studying appendicitis in all its various moods and forms. He has seen nearly every form of treatment from the simplest to the most heroic. Looking around him, he is inclined to say that the prevalent surgical treatment of appendicitis, though still holding the position of an idol, is an idol whose pedestal is beginning to totter.

Mode of Action of Vitamin D.—Investigations made by Harris on hypervitaminosis have substantiated the theory that the characteristic mode of action of vitamin D is to permit an increased "net absorption" of calcium and/or phosphate from the intestine, tending to raise the level of the blood calcium and/or phosphate: the latter rise automatically brings about increased calcification in sites provided with the "bone" or "calcifying" enzyme, phosphatase. This action is apparent whether the vitamin is fed in suboptimal amounts, in doses approaching the optimum, or in moderate excess. Hypervitaminosis thus stands in logical contrast with rickets (hypovitaminosis or avitaminosis). In the latter there is deficient net absorption of calcium and/or phosphate, hence hypocalcemia and/or hyperphosphatemia, and resulting insufficient calcification; while in hypervitaminosis there is a potential increase in net absorption, hypercalcemia and/or hyperphosphatemia, and excessive calcification in sites such as the growing end of the bone, in teeth, and also in certain soft tissues such as the kidney and aorta, which are also richly provided with the "bone" enzyme. The indiscriminate use of parathyroid extract clinically for cases of suspected calcium deficiency is to be deprecated, most definitely in such conditions as infantile tetany, osteomalacia and late rickets; for although it will succeed in raising a low blood calcium, it merely aggravates the underlying metabolic error causing loss of minerals to the body, and still further depleting the already impoverished bones. Vitamin D, on the contrary, rectifies hypocalcemia (or hypophosphatemia) by ensuring an adequate utilization of the food calcium (and/or phosphorus). The ill effects in hypervitaminosis are the same in man as in experimental animals. Clinical experience shows that for the human being the toxic overdose of viosterol is not far removed from the optimal (not "minimal") curative dose. The correct dosage should therefore be strictly adhered to.

Cerebrospinal Fluid Pressures in Syphilis.—In a series of 313 cases of syphilis in which he made routine examinations of the cerebrospinal fluid, Hewer found that hypertension was

the least common abnormality and that there was no apparent relation between the degree of pathologic change and the pressure of the fluid. In the series there were twenty cases of clinical neurosyphilis. Ninety-two presented pathologic fluids, but only five showed pressures in excess of 20 cm. of fluid, and one of these was certainly due to congestive heart failure. These figures contrast strikingly with those presented by other authors and are in entire disagreement with the constantly repeated textbook opinion that hypertension is one of the earliest signs of syphilitic involvement of the central nervous system.

Practitioner, London

128: 465-568 (May) 1932

*Relations Between Eye Disease and General Medicine. E. Clarke.—p. 465.
*Iritis. W. S. Duke-Elder.—p. 471.
*Cataract. R. H. Elliot.—p. 481.
Certain Problems of Refraction in Relation to General Practice. A. Rugg-Gunn.—p. 493.
Treatment of Pneumonia. A. H. Holmes.—p. 505.
Dietetic Facts, Fads and Figments. A. Abrahams.—p. 519.
Oral Treatment of Diabetes Mellitus: Explanation of the Synthalin System. A. T. Todd, W. P. Brinckman and J. R. E. Sansom.—p. 531.
*Chronic Coli-Bacillemia and Its Manifold Consequences. P. Desgeorges.—p. 543.
Observations on Perforated Gastric and Duodenal Ulcers. D. J. Harries.—p. 554.
Magnesium Sulphate in Otorrhea. E. Watson-Williams.—p. 556.

Eye Disease and General Medicine.—Clarke believes that one of the most subtle associations, perhaps the commonest for harm between the eye and the body, is revealed in eyestrain. Every one knows that headaches may be caused by eyestrain, but even now it is not generally recognized how many complaints may owe their origin to it. Ocular migraine, dyspepsia, insomnia, general lassitude or malaise may be entirely due to eyestrain—or eyestrain may be the chief cause. The reason this is so subtle is that more often than not the eyes are not suspected. Vision is good and the patient is quite unaware that this good vision is obtained at a big expense of nervous energy. Small errors of astigmatism and anisometropia can be unconsciously corrected, and this means a constant drain on the nervous energy; impulses are passing from the brain to the ciliary muscle during all the waking hours. In the robust and the young, this may not have any apparent harmful effect; but in those who are weakly or who have a delicate nerve organization or whose "nerve balance" is easily upset, this constant drain may produce all sorts of symptoms. It must be remembered also that, in addition, this eyestrain produces reflex irritation and loss of resisting power both locally and generally, and lowered vitality.

Iritis.—Duke-Elder calls attention to the fact that to a large extent the term "iritis" is a misnomer. Anatomists have long been accustomed to divide the uveal tract into three parts (the iris, the ciliary body and the choroid) and following them clinicians have spoken of iritis, cyclitis and choroiditis. It must be remembered, however, that these descriptive terms tend to convey an impression of localization which is rarely justified in the spheres of physiology or pathology. The eye is limited by a tough and relatively impermeable sclerocorneal coat, and within this coat all the tissues are bathed with the common intra-ocular fluid, in which a very free diffusion of toxic materials is permitted, so that the tendency is for the eye to be involved and respond as a whole even to an isolated lesion. Moreover, the vascular arrangements, although terminally divided into an anterior and a posterior system, are richly supplied with anastomoses, and the nerve supply is identical, so that both in its normal metabolism and in the derangements of its functions the uveal tract tends to act as a unified whole, wherein if one part becomes inflamed, the remainder tends to suffer simultaneously. Probably to a large extent depending on the arrangement of the blood vessels, however, inflammatory disturbances do tend to localize themselves as an anterior or posterior uveitis, and in the former category, although there is probably never an iritis without a cyclitis, the large group of cases in which an inflammation of the iris dominates the clinical picture justifies the use of the term iritis. The greatest interest and most important aspect of cases of iritis are their etiology, for on this hinges their prevention, their rational treatment, and the undertaking of precautions against recurrences which too frequently bring disasters in their train. Unfortunately the etiology of iritis is a question about which much is obscure. At the commencement, two types may be differentiated: (1) those relatively rare and obvious cases wherein an infection is introduced into the eye by a perforating wound or ulcer, and (2) the great majority of cases, wherein the causative agent enters through the blood stream. In the latter group of cases the inflammation may be set up by the entrance either of micro-organisms or of toxic materials into the eye. In a small minority of cases in which actual tuberculosis or gummatous nodules are present, the type and method of infection is obvious; but the average case of iritis presents a nondescript, nonspecific clinical picture and can only be assessed as a member of a heterogeneous group in which scientific classification is as yet quite impossible.

Cataract.—According to Elliot, the earlier a mature cataract is operated on the better. The patients are usually elderly, and though even extreme old age does not constitute a bar to the operation, every year younger is an advantage at a time of life when deterioration is much more rapid than in the earlier decades. No patient should be allowed to drop his ordinary activities and to sink into listlessness. Once a patient reaches the stage when he can no longer get about comfortably, or when he cannot read, write and carry on his usual occupations, he should be operated on without delay. To the skilled operator, immaturity of cataract presents no real difficulty. The fact that a cataract is commencing in the opposite eye is an added reason for early operation on the first one. The exact time for operation demands careful thought. The guiding principle is to get the first eye operated on and to give it time to become strong and useful before the second becomes too blind to be serviceable. This necessitates operating on immature cataracts in those cases in which the second eye follows the first after a short interval. Though a patient has a good result in one eye, the second should be operated on if cataractous, for the following reasons: 1. The sight of the first eye may be lost by injury, retinal hemorrhage, glaucoma, or other dangers common to the old; when sight is concerned, no risks should be taken and every vestige should be conserved; therefore, the margin of safety must be made as wide as possible. 2. Binocular vision is much better than monocular, and much safer. 3. The longer the operation is put off, the greater the age of the patient, and, therefore, the greater the risks of trouble.

Chronic Coli-Bacillemia.—Desgeorges states that chronic coli-bacillosis is generally looked on as a disease which is more troublesome than serious. By reason of its refractoriness, the ease with which it recurs, and the multiplicity of the disturbances to which it gives rise, the author feels justified in asserting that it is, on the contrary, a formidable disease. It is serious because it plays a foremost part in the causation of pathologic conditions as difficult to cure as pyelitis and chronic cystitis, and as painful and subject to complications as cholecystitis and cholelithiasis. It is serious because of its frequent disastrous effects on the general health and the nervous system.

Quarterly Journal of Medicine, London

1: 213-360 (April) 1932

*Relative Value of Some Diphtheria Prophylactics, and Principles of Active Immunization Against Diphtheria. S. F. Dudley.—p. 213.
Observations on Disturbance of Metabolism Produced by Injury to Limbs. D. P. Cuthbertson.—p. 233.
*Spontaneous Overbreathing Tetany. R. A. McCance.—p. 247.
*Mobility of Abdominal Viscera. A. E. Barclay.—p. 257.
*Electrocardiogram in Diphtheria. S. Alstead.—p. 277.
Study of Total Exchange of Water, Sodium, Potassium and Nitrogen in Epilepsy. F. B. Byrom.—p. 289.
Undulant Fever in Northeast of Scotland. J. Smith.—p. 303.
Some Observations on Persistent Bradypnea in a Case of Postencephalitic Parkinsonism. Marion Brown and C. G. Imrie.—p. 319.
*Treatment of Obesity: Comparison of Effects of Diet and Thyroid Extract. D. M. Lyon and D. M. Dunlop.—p. 331.
Diabetic Coma: Significance of Alteration in Blood Urea. A. Lyall and A. G. Anderson.—p. 353.

Diphtheria Prophylactics.—From the evidence in the literature and from experiments at Greenwich Hospital School, Dudley believes that three fortnightly doses of a reliable toxoid, if given to only half the population under 10 years of age, would reduce the incidence and mortality from diphtheria to an extent that would make active immunization a sound financial investment, besides being of benefit to the public health.

If as many as 80 or 90 per cent of children under 10 could be maintained Schick immune, he believes that, for practical purposes, diphtheria would vanish within five years.

Spontaneous Overbreathing Tetany.—McCance calls attention to the fact that certain persons are peculiarly susceptible to the changes of reaction brought about by overbreathing. Tetany may develop in these persons with scarcely noticeable overbreathing and before any definite chemical change can be detected. Investigations on two such persons are described. Many of the cases of so-called sporadic tetany in adults may be of this type. Diagnosis is easily confirmed by making the patient overbreathe. This procedure is harmless and demonstrates at once to the subject the cause of the attacks and how to avoid them. Experiments performed by the author with epinephrine in one case suggest that this drug has no direct action in producing tetany, but that it may do so by stimulating hyperventilation. Associated with the tetany, one case showed a reduction of the T waves in the first and second leads of the electrocardiogram.

Mobility of Abdominal Viscera.—Barclay records a study of the effect of posture and of forced respiration on the abdominal viscera. Composite pictures are reproduced showing the displacements and distortions. These indicate that in normal subjects the abdominal organs are not fixed and that they have a wider range of movement, in relation both to the abdominal wall and to each other, than might be expected. The illustrations record the mobility and indicate the "fluid" character of the anatomy of the abdominal viscera.

Electrocardiogram in Diphtheria.—Alstead states that the electrocardiograph is a valuable means of estimating the severity of diphtheritic myocarditis and the only means of accurate diagnosis of conductive lesions in the majority of cases. Though a large proportion of cases in which the patient has mild myocarditis are undetected by clinical methods, such cases become comparatively rare in the moderate and severe types of diphtheria. Hence for practical purposes the character of the heart sounds is usually a sufficiently accurate guide to the state of the myocardium. The clinical signs most closely related to the electrocardiographic observations are those dependent on cardiac function; e. g., response to effort and the trend of the pulse rate. The significance of persistently "abnormal" heart sounds can be safely estimated by the electrocardiogram and the patient's response to effort, considered together. Of the various physical signs in the heart taken to indicate myocarditis in diphtheria, the most valuable as confirmed by simultaneous electrocardiographic records are: (1) progressive softening of the first heart sound at all areas, especially the mitral and aortic areas; (2) the character of the cardiac impulse at the apex and movement of the apex beat to a position farther away from the midline, and (3) splitting of the first mitral sound producing a triple rhythm. Serial electrocardiographic records show that, in a considerable proportion of cases, with the onset of diphtheritic paralyses there is a simultaneous relapse in the condition of the heart. This fact is much less frequently observed when clinical methods alone are employed. The severity of the cardiac lesion is usually proportional to the severity of the toxemia when specific treatment is commenced. There are, however, cases in which neither the clinical nor the electrocardiographic abnormalities are sufficient to account for the state of impending circulatory collapse that is often seen in diphtheria. Although gross degeneration of the heart muscle and specialized conducting system are frequently shown by the electrocardiograph during diphtheria, these lesions are mostly transient. Complete heart block is by far the commonest lesion associated with circulatory collapse ending fatally, but complete block is probably only a contributory factor in a condition characterized by widespread changes in the circulatory system. Fifteen fatal cases are classified by the author according to the "early" and "late" types described by Schwentker and Noel. Except in the event of complete heart block, no reliance can be placed on the electrocardiographic observations in diphtheria in assessing prognosis.

Treatment of Obesity.—Lyon and Dunlop studied the reduction in weight in thirty-five cases of different types of obesity. All the subjects, including marked endocrine cases, lost weight while dieting. It was found that the rate of weight loss bears a definite relation to the caloric value of the diet: the smaller the diet, the more the loss. The rate of loss is greatest at first and decreases as the diet is continued. If the total caloric intake is kept constant at 1,000, the weight loss is greatest when the carbohydrate of the diet is low. It was found that 9 grains (0.6 Gm.) of thyroid extract is required in order to produce a loss of weight equal to that caused by the standard 1,000 calory diet. The effect of the thyroid is proportionate to the dose given. The basal metabolic rate for the series of cases was usually within normal range on admission. The rate usually fell during the period of undernutrition and was raised about 20 points during the administration of thyroid extract. The loss of weight when the patients were taking low diets appears to be due to removal of fat and water from the body, but when thyroid is given the utilization of fat represents a smaller fraction of the weight loss, while the proportion of water removed from the body is greater, and some of the loss may be due to a negative protein balance.

South African Medical Assn. Journal, Cape Town

6: 251-284 (April 23) 1932

Milk Supplies, with Especial Reference to Legislation. G. H. Gunn. —p. 251.
Pneumonia. J. R. Bosman.—p. 257.
Congenital Hypertrophic Pyloric Stenosis. J. A. Douglas and B. G. v. B. Melle.—p. 259.
Surface Disposal of Night-Soil from Buckets. R. Friel.—p. 263.
Note on Deterioration of Tinctures of Digitalis. J. W. C. Gunn.—p. 264.
Management of Premature Baby. D. D. Dunn.—p. 264.
Pyuria in Childhood, with Especial Reference to Treatment. S. Heymann.—p. 269.

Paris Médical

1: 473-512 (June 4) 1932

Infectious Diseases in 1932. C. Dopter.—p. 473.
Facial Paralysis and Poliomyelitis. V. de Lavergne, E. Abel and P. Kissel.—p. 488.
Disease of Nicolas-Favre. P. Ravaut and R. Cachera.—p. 495.
Nephrotropic Viruses. J. Troisier.—p. 502.
*Clinical Forms of Rat-Bite Fever. Costedoat.—p. 505.

Clinical Forms of Rat-Bite Fever.—Costedoat describes the three principal forms assumed by rat-bite fever in European climates. The common form starts with an attack of fever about fifteen days after the rat-bite is received. At the same time the region of the bite (usually the hand) becomes inflamed and a lymphangitis ending in epitrochlear or axillary adenitis develops. An eruption of red macules or papules of lentil size chiefly on the affected members, but sometimes on the whole body, accompanies the febrile attack. The fever recedes suddenly after about three days. These febrile attacks, accompanied by eruption and inflammation, recur at intervals of a few days for months or a year unless specific treatment is given. Local symptoms sometimes precede but never follow the rise in temperature. The eruption may not appear until the fourth attack and is of variable nature; sometimes it appears as papules, sometimes it resembles the erythema of measles and rarely it is petechial. The muscular pain is severe and does not disappear entirely during the remissions. There is a moderate leukocytosis and the proportion of polymorphonuclear cells is sometimes increased to 95 per cent. The disease is easily differentiated from common local infection, erysipelas, syphilis, measles and so forth. Positive diagnosis is easily made when all symptoms exist, but valuable aid is furnished by etiology, therapeutic test and laboratory examination. A rat-bite is necessary for the development of the disease. Immediate response to an injection of neoarsphenamine is a diagnostic aid, although cure requires a long series of injections. The best laboratory procedure for isolating the spirochete of rat-bite fever is subcutaneous inoculation of 2 cc. of the patient's blood (taken during one of the first febrile attacks) into a mouse. The spirochetes can be recovered from the blood and organs of the animal in from one to four weeks. A localized form of rat-bite fever in which the eruption or fever or both may be absent has been encountered. Less rare than the localized form is the septicemic form in which local manifestations are slight or lacking while the general symptoms are those of the common form. The septicemic form may resemble an eruptive fever or it may be characterized by the intensity of the pains or, as shown in a case report, a period of recurrent fever without skin lesions may be followed by a

sort of erysipelas of the head and upper limbs. Differentiation of rat-bite fever without eruption from relapsing fever, icterogenic spirochetosis and other recurrent fevers is discussed.

1: 513-524 (June 11) 1932

*Staphylococcic Pott's Disease (Staphylococcic Spondylitis) in Adults. Carnot.—p. 513.
Acute Malignant Endocarditis Grafted on Congenital Subaortic Stricture. E. Sergent, C. Launay and F. Imbert.—p. 520.
Calcium Chloride in Cardiac Disturbances. S. Vialard.—p. 523.

Staphylococcic Pott's Disease (Staphylococcic Spondylitis) in Adults.—Carnot reports and discusses two cases of staphylococcic spondylitis in middle-aged men. The condition so strongly resembled Pott's disease that he designates it by that name in the title. In the first case, after a long series of staphylococcic manifestations, certain osseous localizations persisted with prolonged suppuration of one finger and the sternum and above all severe destruction of the bodies of several thoracic vertebrae, resulting in kyphosis. In the second case, multiple staphylococcic furuncles over a long period were followed by a staphylococcemia, which was apparently cured by bacteriophage but was followed soon afterward by vertebral spondylitis with destruction of the anterior part of the body of the eleventh and twelfth thoracic vertebrae with gibbosity and radicular pains and a congestive abscess in the lumbar region. The case terminated fatally, as frequently happens in staphylococcic spondylitis affecting the vertebral bodies. Chronic staphylococcic spondylitis in mature persons, evolving like Pott's disease, is much less well known than the acute vertebral osteomyelitis of childhood or adolescence. Clinically it is characterized sometimes by suppuration, sometimes by nervous disturbances, and sometimes by gibbosity. The abscess formation which occurs in most cases is described; it may be extrarachidian or intrarachidian. The nervous disturbances may appear as pseudorheumatic pains, lumbago, or vertebral rheumatism. Some cases present the form called vertebral epiphysitis of adult growth; sometimes spinal cord lesions occur. The principal symptom, gibbosity, often reminding one of Pott's disease, may develop suddenly or gradually. It occurs only in spondylitis of the vertebral bodies; spondylitis of the lamina does not produce it. The author says the etiology of chronic staphylococcic spondylitis with its syndrome of abscesses, radiating rachidian pain and gibbosity often cannot be established even by roentgenography; an anamnesis of multiple staphylococcias or the finding of staphylococci in pus from an abscess is necessary to make a definite diagnosis. Because of the prolonged evolution that often characterizes this disease, one always feels some uneasiness for the future despite immobilization, surgery and vaccines.

Presse Médicale, Paris

40: 885-900 (June 4) 1932

Alimentary Hypoglycemia. M. Labbé, R. Boulin and M. Pétresco.—p. 885.
Postvaccination Thrombophlebitis of Right Arm. Desmarest, A. Alivisatos and C.-N. Alivisatos.—p. 887.
*Angina Pectoris Due to Anaphylactic Shock. A. Dumas.—p. 889.

Angina Pectoris Due to Anaphylactic Shock.—Dumas thinks that anaphylactic shock may be added to the list of conditions, such as effort and emotion, productive of the coronary spasm that causes an attack of angina pectoris. He does not think that the shock alone causes the disease, but the coronary lesion is not sufficient to explain the spasmodic nature of the disease and a condition productive of spasm is necessary to bring on the attack. In anaphylactic shock there is a sudden drop in arterial tension, which in persons whose intramyocardial circulation is difficult, because of a more or less discrete coronary lesion, may explain an attack of angina. The author reports two cases of angina pectoris in which the anginal attacks appeared to be linked to digestive hemoclasia in individuals predisposed by a more or less marked hepatic insufficiency. In cases of acute coronary disease the coronary thrombosis or coronary inflammation is sufficient to cause attacks of angina without intervention of a spasm. It is rather in the frequent chronic coronary inflammation of atheromatous nature sometimes discovered at necropsy in persons who never experienced attacks of angina pectoris that spasm plays an important part. In these cases the spasm alone may be considered responsible for the disease, because in the absence of spasm the anginal attack might not occur despite the coronary atheroma. Simple alimentary prescriptions based on a precise interrogation and minute observation may protect the patient from the dreaded attacks.

Semaine des Hôpitaux de Paris

8: 311-342 (May 31) 1932

Syphilis and the Renaissance. Laignel-Lavastine.—p. 311.
*Mesenteric Cysts in Nurslings. A. Martin.—p. 323.
Talipes by Paralysis of Triceps: Transplantation of Peroneus Muscles and Tibialis Posticus on Calcaneum. R. Ducroquet.—p. 326.
Acute Appendicitis in Children. J. Armingeat.—p. 332.
Acute Osteomyelitis of Pubis: Case. H. Reboul.—p. 335.

Mesenteric Cysts in Nurslings.—Martin reports a case of cystic lymphangioma of the mesentery in a child, aged 18 months. In this case the cystic fluid, which may be chylous, serous, hemorrhagic or purulent in lymphangiomas, was clear and pale yellow. The classic symptoms are signs of compression, gastric and intestinal disturbances, vomiting, diarrhea in some cases, constipation in others and sometimes subocclusion. There is an increase in the volume of the abdomen. Percussion may give variable signs. The complications in these cases are due to increase in volume, causing disorders due to compression, suppuration and rupture of the cyst, which may occur without infectious phenomena and lead to serous or chylous peritonitis. Diagnosis, the author thinks, is always difficult. Theoretically the mesenteric cyst is recognized by its median topography, lateral mobility and incomplete and variable dulness on percussion, but in practice the diagnosis is never made. In the case reported the tumor was in the left hypochondrium; it was not movable in a transverse direction, this being characteristic of the retroperitoneal cyst, which is so firmly attached by its pedicle and lumbar implantation as to be immobile; the percussion sound was dull. In discussing treatment, the author counsels against puncture. He was able to split this tumor and accomplish a complete extirpation avoiding the mesenteric vessels, as the tumor was well isolated and there was no inflammation. Frequently, in attempting total removal of the cyst, one risks injury to the mesenteric arteries or veins. One should perform an operation that produces less shock. Marsupialization of the cyst may have to be done; cure by this method is slower, but one avoids operative failures. One should not try to remove an inextirpable cyst; one should rather limit oneself to partial resection.

Revue Médicale de la Suisse Romande, Lausanne

52: 321-384 (May 25) 1932

Bang's Septicemia. M. Reale.—p. 321.
*Gastroptosis: Surgical Treatment. A. Jentzer.—p. 335.
Chronic Maxillary Sinusitis. J. Feuz.—p. 347.
Treatment of Cardiac Insufficiencies. E. Bauer.—p. 355.

Surgical Treatment of Gastroptosis.—Jentzer says that ptosis of the stomach may exist independently of other pathologic changes but that it is almost always accompanied by dilatation and atonicity. Lesions of chronic gastritis are habitual in gastroptosis and sometimes more serious disorders, such as cancer, ulcer and biloculation, exist. While gastroptosis may exist alone, it is often part of a complex syndrome, owing to ptosis of most of the abdominal organs. Among the factors favoring the development of gastroptosis are congenital predisposition, dietetic and therapeutic errors, infectious diseases, compression of the epigastric region, loss of weight, and pregnancy. Several theories of pathogenesis are discussed. The subjective gastric symptoms are variable: sensations of fulness after eating, loss of appetite and so on. In the phase of active dilatation with hypertrophy, hunger pangs are felt. Other symptoms are clapotage, frequent eructations, sometimes vomiting, constipation, cardiopulmonary disturbances, nervous disturbances, and malnutrition. Diagnosis is aided by insufflation, roentgenoscopy and intubation. It is important to differentiate between a true pyloric obstruction and primary gastroptosis. For surgical therapy the author recommends Lambret's operation, which consists in suspending the stomach at the level of the greater curvature. Lambret uses a strip of aponeurosis taken from the left side of the left abdominal rectus, pediculated at its upper portion, introduced into the abdomen between two ribs, and fastened to the entire length of the greater curvature and sutured at its free end to the round ligament at the point where it separates from the

liver. The author uses dead tendons instead of an aponeurotic strip for the suspension because it shortens the duration of the operation, diminishes the shock, and avoids lateral cicatrices, postoperative complications and finally the partial destruction of the abdominal wall. The aponeurotic band and the tendon do not appear to be resorbed, but if this should happen it would not be very serious as the stomach would have had time to retract and regain its tonicity. The author hopes this operation will replace the use of abdominal straps, which provoke atrophy of the abdominal muscles. Lambert's operation is physiologic; it does not act from one day to the next but progressively without touching the mucosa, and, while it does not always cure the disorder, it cannot harm the patient.

Schweizerische medizinische Wochenschrift, Basel

62: 489-512 (May 21) 1932

Tuberculosis in Swiss Army. Hauser.—p. 489.
Bacteriology of Tubercle Bacillus. A. Grumbach.—p. 493.
Trauma and Pulmonary Tuberculosis. H. Koenigsfeld.—p. 494.
*Tonsillitis Masking Tuberculosis. H. J. Schmid.—p. 497.
Experimental Human Tuberculous Follicular Dermitis. S. Marbais.—p. 499.
Expectorants in Treatment of Pulmonary Tuberculosis. J. Andreoni.—p. 500.
Procedure in Overflow of Pus into Bronchial Tubes Following Perforation of Pleural Empyema. W. Dobrzaniecki.—p. 501.

Tonsillitis Masking Tuberculosis.—Schmid points out that it is generally known that tonsillitis may precede the first manifestation of a tuberculosis. However, that this is considered either as an incidental concurrence or that the tonsillitis is thought to be the factor that led to the manifestation of the tuberculosis he does not accept as true for all cases. He admits that either may occasionally be true, but he thinks that in the majority of cases the relationship between the pharyngeal symptoms and the tuberculous process is closer. Against a mere accidental concurrence speaks the considerable frequency of this combination. The theory that tonsillitis only causes the manifestation of the tuberculosis is contraindicated by the observation that not severe forms of tonsillitis precede the tuberculosis but usually comparatively mild forms, in which difficulty in swallowing is the main symptom, and there is a noticeable discrepancy between the slight local symptoms and the severe general symptoms, particularly the fever. In many instances this stage of the disease is not seen by the physician, but the anamnesis often reveals that an "influenza with sore throat" preceded the tuberculosis. The author gives several case reports and in the conclusion he admits that the relationship between tonsillitis and tuberculosis also has a reverse aspect; that a chronic tonsillitis, by its increased temperatures, may simulate tuberculosis. But the author thinks that because this is generally known to physicians there may be danger that a tuberculosis is overlooked. He therefore emphasizes once more that it should also be kept in mind that a tonsillitis may mask a tuberculosis.

Morgagni, Naples

74: 667-696 (May 22) 1932

*Painful Contralateral Reflex in Some Cases of Renal Infections. M. Cilento.—p. 667.
*Solieri's Plastic Method of Surgical Treatment of Hemorrhoids. P. Emiliani.—p. 670.
Pathology of Peripheral Nerves. Alteri.—p. 676.

Painful Contralateral Reflex in Renal Infection.—Cilento distinguishes four types of contralateral pain: (1) simple, spontaneous contralateral pain in the region of the normal kidney (on bimanual palpation of the renal regions the pain is produced only in the seat of the pathologic kidney and by the palpation of the corresponding region); (2) nonspontaneous contralateral pain caused by the pathologic kidney in which on palpation the pain is referred to the region of the normal kidney; (3) nonspontaneous contralateral pain caused by palpation of the normal kidney, and (4) nonspontaneous contralateral pain from palpation of the normal kidney associated with a muscular resistance of the abdominal wall on the side corresponding to the normal kidney. The functional reflex is more serious and important than the painful reflex and can even lead to a reflex anuria which only the extirpation of the pathologic kidney can overcome. In the renorenal reflexes the contralateral pain, observed in rare cases of unilateral renal ptosis without parenchymal alteration and elaboration of toxins, impairs the theory of toxins or secondary lesions in the opposite kidney. The author states that in two cases the distention of the pelvis of the pathologic kidney caused contralateral pain in the normal kidney. He stresses the importance of this symptom in cases in which the renorenal reflex is doubtful and investigation may elicit a reflex pain in the normal kidney, originating from the pathologic kidney.

Solieri's Method of Surgical Treatment of Hemorrhoids.—Emiliani criticizes six different methods of treatment of hemorrhoids, exposing their defects, and then describes the method of Solieri, which has been applied for many years with success and without stenosis or prolapse of the mucosa. It consists of an excision on the contour of the divulsed anus of three or four diamond-shaped areas, of which the internal triangle includes the hemorrhoidal mass of the mucosa and the external triangle includes the external hemorrhoids. When the cure is completed, the anal region is perfectly regular and smooth, intersected by three or four radiating linear scars.

Revista Médica Cubana, Havana

43: 649-778 (June) 1932. Partial Index

Medical Treatment of Gastroduodenal Ulcer. I. Angulo Alvarez.—p. 649.
*Left Dorsolateral Position in Appendectomy. F. Leza.—p. 668.
Protection of Voice at Age of Puberty. L. Labarraque.—p. 672.
Anesthesia in Otorhinolaryngology. R. Moreno.—p. 680.

Left Dorsolateral Position in Appendectomy.—Leza states that appendectomy can be performed with good results, even in grave cases, by placing the patient in the left dorsolateral position for the operation. The patient (with the arms raised over the head), lies in the left dorsolateral position inclined at an angle of about 45 degrees, with a bag of sand or a pillow in the angle formed by the table and his back, in order to maintain the same position all through the operation. Under the influence of the patient's position the mobile viscera are displaced toward the left (the opposite side to that on which the operation is going to be performed). The cecum, being a semimobile organ, is displaced to the left only to a slight degree. It is preferable to localize the cecum by percussion and to make the incision (a small opening) along a line corresponding to its internal border, near its fundus, that is, at a distance of about 1 inch (2.5 cm.) from the spina iliaca toward the appendicular region. The cecum can be identified by applying a separator of Farabeuf to either of the borders of the small incision. The appendix can be exteriorized and removed by this technic in a few seconds; thus one avoids any unnecessary manipulation (except in cases of adherent retrocecal appendix or when there are some other complications). With this simple technic, appendectomy can be done under local anesthesia.

Semana Médica, Buenos Aires

39: 1441-1504 (May 12) 1932

Surgery of the Labyrinth. H. Zubizarreta.—p. 1441.
*Ovarian Grafts: Results and Indications. C. A. Castaño and A. J. Risolía.—p. 1469.
*Route for Artificial Serotherapy in Obstetric Hemorrhages: Therapeutic Use of Mammary-Uterine Reflex. J. León.—p. 1474.
Generalized Cutaneous Sarcomatosis. E. A. Votta.—p. 1480.
Pregnancy of Five Months: Left Bifid and Right Angulated Ureters. S. E. Bermann.—p. 1489.

Ovarian Grafts.—Castaño and Risolía obtained satisfactory results from ovarian autografts in forty-four oophorectomized women (under 40) and from ovarian homografts in seven other oophorectomized women (whose age ranged between 20 and 30 years, only one woman of this group being as old as 42). Young and healthy women who were going to have an operation for some condition, such as fibroma or appendicitis, were chosen as donors in cases of homografts. The receiver and the donor of the graft were operated on simultaneously in the same room by different surgeons so that the graft (a piece of the cortical part of the donor's ovary) could be implanted immediately after it had been removed, since when the graft is placed in Ringer's solution or other fluid or serum, or is not implanted immediately after having been removed, its vitality diminishes. It is advisable to perform the operation under local anesthesia of the superficial cutaneous layers, because the infiltration of anesthesia into the deeper layers of the operative field may cause a diminution of the vitality of the graft. The

operation is well tolerated with local anesthesia. However, when dealing with emaciated or nervous patients, one may resort to general anesthesia. The following technic is used for the implantation of the graft: A paramesial incision (either right or left) 4 or 5 cm. long is made in the bi-iliac line, followed by an incision of the anterior sheath of the rectus abdominis muscle, in the same direction. The rectus abdominis muscle is slightly displaced and the graft is applied behind it. The sutures are inserted first on the sheaths of the muscle and then on the layers of the skin; care should be taken not to pinch the graft. Two or three days of rest are sufficient for the patient. The authors conclude that ovarian grafts may be resorted to in the treatment of the grave symptoms of ovarian insufficiency caused by the surgical removal of either one or both ovaries in women under 40 who do not improve under the action of uniglandular or pluriglandular opotherapy. The administration of series of daily injections of a solution made up with macerated human ovary from normal women is advisable to stimulate the action of the homograft. Ovarian grafts do not exclude the use of opotherapy. The action of ovarian grafts is not related to suggestion, as some authors have previously stated. If one takes in consideration the short time of activity of the grafts (about three years), the simplicity of the method and the easy technic of the operation, there seem to be no contraindications to implant a new graft when the activity of the graft previously implanted has ceased Further studies on this subject are advisable.

Route for Artificial Serotherapy in Obstetric Hemorrhages.—León made a detailed study on the intimate nervous relationship that exists between the mammary glands and the genital organs, and also on the influence that the intramammary injections of physiologic solution of sodium chloride have on the contractility of the uterus during pregnancy, physiologic labor and the puerperium. The author concludes that the intramammary administration of injections of physiologic solution of sodium chloride constitutes the treatment of choice to check genital hemorrhages of obstetric origin in those cases in which the elicitation of the mammary-uterine reflex may be of therapeutic use by provoking or increasing energetic contractions of the uterus. The treatment aims, at the same time, to improve the general condition of anemia caused by the hemorrhage and to secure hemostasis. The administration of injections of physiologic solution of sodium chloride by the intramammary route is contraindicated when the appearance or exaggeration of the contractions of the uterus may be considered as an unfavorable complication of the condition in the given obstetric case.

Deutsche Zeitschrift für Nervenheilkunde, Berlin

125: 211-300 (May 11) 1932

Cerebral Injuries Caused by Electric Influence. K. Löwenstein and K. Mendel.—p. 211.
*Neuritis in Pigmentary Cirrhosis. R. Mancke.—p. 279.
Threshold of Simultaneous Tactile Sensibility of Skin (Tactile Sphere) When Irritator is Moved. K. Müller.—p. 286.
*Bilateral Facial Paralysis in Parotitis that Concurs with Symptoms of Infectious Polyradiculoneuritis. L. J. Nemlicher, W. W. Tschernikow and S. J. Solomonowa.—p. 292.

Neuritis in Pigmentary Cirrhosis.—Mancke observed five patients in whom the reflexes of the lower extremities, namely, the patellar and the achilles tendon reflexes, were absent. One case was clinically diagnosed as pigmentary cirrhoses; in three instances there existed pigmentary cirrhosis and diabetes, and the other patient had cirrhosis of the liver and diabetes. On the basis of the anamnesis and observation, an infectious as well as an exogenic toxic cause could be excluded. The examination of the central nervous system revealed in all instances only the disturbance in the reflexes. Motor and sensory disturbances as well as ataxia were not detectable. The author assumes that the abolition of the reflexes was caused by an endogenous toxic neuritis of the femoral or sciatic nerve, which is much more frequent during the combination of hepatic and pancreatic disorders than it is if either of the organs is affected alone.

Bilateral Facial Paralysis in Parotitis.—Nemlicher and his associates describe three cases of an infectious disorder, which had a subacute course and was accompanied by polyradiculoneuritic symptoms. The main symptom was a facial diplegia. On the basis of simultaneously existing slight inflammatory manifestations of the parotid gland, the disease was considered an abortive form of epidemic parotitis. For one of the patients, a boy, in whom the testes were involved, this theory is confirmed. As further proof the authors cite reports from the literature on the concurrence of polyneuritis with epidemic parotitis. The facial paralysis is considered to be directly connected with the glandular disorder. It is probable that from the primary diseased parotid gland the disorder spread to the facial nerve. Although in true mumps facial paralysis is relatively rare, the occasional concurrence nevertheless indicates in some cases a special affinity of the disease virus for the facial nerve. It is also pointed out that in some cases of facial paralysis a simultaneously existing disorder of the parotid gland may be overlooked. In the observed cases the general character of the disorder, among other signs the blood picture, seems to corroborate the assumption that epidemic parotitis is caused by a filtrable virus with neurotropic characteristics.

Klinische Wochenschrift, Berlin

11: 881-928 (May 21) 1932

Present Status of Pregnancy Toxicoses. L. Seitz.—p. 881.
*Comparative Investigations on Lipoid Complex of Blood Serum in Essential Hypertension, Muscular Exertion, Starvation, Pregnancy and After Eating. C. Fahrig and L. Wacker.—p. 886.
Ether Soluble Acids in Blood in Uremic Acidosis. E. Becher, R. Enger and Elfriede Herrmann.—p. 891.
Capacity of Human Organism to Absorb Water from Air. E. Zak.—p. 893.
*Disturbances in Carbohydrate Metabolism in Patients with Diphtheria. A. Brems.—p. 895.
Fundamental Law of Basal Metabolism in Biology. H. Pfleiderer.—p. 896.
Reply to Preceding Article. H. Bohnenkamp.—p. 899.
Colloidal Gold Solution According to Fowweather: Value for Test of Spinal Fluid. W. Herrmann.—p. 902.
Nature of Diabetes Insipidus. F. Mainzer.—p. 903.
Successful Transmission of Confluent Perivascular Softening of Cerebral Medulla in Monkeys. W. Gärtner.—p. 905.
Relationship Between Brucella Melitensis Infection and Brucella Abortus Infection. A. Schittenhelm.—p. 905.

Lipoid Complex of Blood.—Fahrig and Wacker compared the lipoid complex of healthy persons during rest with that of patients with hypertension, during starvation, during pregnancy, following physical exertion and following ingestion of a meal with high fat content. Under lipoid complex they understand the phosphatides (computed as lecithin), cholesterol fatty acid esters, neutral fat and free cholesterol. They found that during essential hypertension there usually exists a hyperlipoidemia. Thus the hypercholesteremia that is often discussed in the literature is only a partial manifestation of the hyperlipoidemia. The other constituents of the lipoid complex are likewise increased, so that the physiologic ratio is largely preserved. The hyperlipoidemia that develops during hunger, pregnancy and following physical exertion shows, in regard to the composition of the lipoid complex, great similarity to the hyperlipoidemia during essential hypertension. In contrast to these forms of hyperlipoidemia, the digestion lipemia that develops after eating a meal with high fat content is characterized principally by a great increase in neutral fat. It is mainly due to fat resorption, whereas the other forms of hyperlipoidemia are primarily an indication of a changed intermediate fat metabolism. During starvation, during pregnancy and following bodily exertion, hyperlipoidemia is probably due to an increased mobilization and utilization of the lipoids for energy production. Exhaustion of the carbohydrate reserve during starvation and increased energy requirements during physical exertion and during pregnancy make an increased fat exchange understandable. The increase in the basal metabolism during constantly increased resistance in the peripheral vessels, and the use of lipoid substances by the cardiac muscle, indicate that the hyperlipoidemia during essential hypertension can likewise be explained on the basis of a greater need for energy producing lipoids. The significance of the increased cholesterol content, aside from its function as a transport form for fatty acids, remains unexplained. The acidoses that occur during hyperlipoidemia are produced either as in starvation and perhaps also in pregnancy by intermediate products of the fat metabolism (ketonic acid, beta-oxybutyric acid) that occur in carbohydrate deficiency, or, as in physical exertion, by lactic acid, a decomposition product of the carbohydrate metabolism. The increased lactic acid content that the authors observed in

one case of essential hypertension may also be a result of the constantly increased cardiac action.

Carbohydrate Metabolism in Patients with Diphtheria.—During the acute stage of diphtheria, Brems observed quite frequently a moderate increase in the sugar content of the blood. During the acute stage of cases of medium severity and in severe cases, the blood sugar curve following an oral dextrose tolerance test was frequently abnormal. With its extremely high maximal values and the considerably prolonged hyperglycemia, it resembled strongly the conditions in diabetes mellitus. This abnormality of the alimentary blood sugar curve is not caused by fever but by a toxic disturbance in the regulation of the blood sugar, which may be due to functional disturbances in the suprarenals, liver and pancreas. From one to two weeks following the first dextrose tolerance test, the curve became nearly or entirely normal. Spontaneous glycosuria was occasionally observed during the acute stage of a severe diphtheria; after dextrose tolerance tests it was nearly always demonstrable.

Medizinische Klinik, Berlin

28: 709-742 (May 20) 1932

Mechanism of Fat Resorption in Organism. G. Rosenfeld.—p. 709.
*Hypertension in Young Persons. K. Walko.—p. 712.
Photometric Determination of Turbidity in Serologic Tests for Syphilis. E. Sehrt.—p. 715.
Treatment of Thyrotoxicosis by Means of Hydrofluoric Acid. V. Gorlitzer.—p. 717.
Striking Increase in Exophthalmic Goiter in Men. A. Wagner.—p. 720.
Action of High Frequency Electromagnetic Waves on Degenerative Paralysis of Nerves. D. Kellner.—p. 721.
Blood Picture in Pulmonary Tuberculosis with Consideration of Erythrocyte Sedimentation and of Blood Groups. A. Sylla.—p. 721.
Diagnosis and Prognosis of Tuberculous Early Infiltrate in Rural Population. F. Schreiber-Ermer.—p. 724.
Circulatory Processes in Pulmonary Embolism. K. Kautsky.—p. 725.
Experiences with Kahn's Albumin A Reaction in Diagnosis of Malignant Tumors. H. Röhrig.—p. 725.

Hypertension in Young Persons.—Walko examined 1,700 male and 120 female students between 16 and 22 years of age for the presence of hypertension. Among the male students he detected hypertension in 17.4 per cent and among the female students in 8.3 per cent. In the majority of cases the hypertension was of the labile type, and the persons affected with it were of the nervous, constitutionally weak, irritable and vasolabile type. Only in a small number was the hypertension of the fixed type. Because a large percentage of the students who had hypertension were consumers of large quantities of alcohol or of tobacco, some being users of both, the author thinks that the constitutional, particularly the nervous, factors are not the only causes of the early manifestation of hypertension, but that alcohol and nicotine are also responsible. In addition to this, many of the young people who had hypertension took little or no exercise. In discussing the treatment of hypertension the author states that systematic exercise, without any attempt of record accomplishments, was beneficial and led to a reduction in the blood pressure. Regulation of the mode of life, a proper diet and the restriction of the use of alcohol and of tobacco were also found helpful. Because the vascular reactions were largely psychogenic and because of disturbances in the sympathetic nervous system, psychotherapy was used.

28: 743-776 (May 27) 1932

Critical Evaluation of Gerson Diet, Especially in Tuberculosis. C. von Noorden.—p. 743.
Lactation and Menstruation. W. Freund.—p. 748.
Treatment of Chorea Minor. W. Enke and K. Wegscheider.—p. 750.
*Influence of Diet with High Carbohydrate Content on Tolerance of Patients with Diabetes Mellitus. G. Czoniczer and E. Kolta.—p. 752.
Problem of Acute Myelosis. F. Lasch.—p. 754.
Almost Complete, Presumably Traumatic Necrosis of Spleen. Frieda Niesner.—p. 755.
Inflammation of Upper Air Passages as Occupational Injury in Manufacture of Photographic Plates. L. Joseph.—p. 756.
Diagnosis of Ruptured Extra-Uterine Pregnancy. Elisabeth Schmitz.—p. 756.
Insomnia and Soporifics. A. Leibholz.—p. 757.
Direct Demonstration of Tubercle Bacilli in Blood Sediments by Hemolysis. B. Busson.—p. 758.

High Carbohydrate Diet and Diabetes Mellitus.—Induced by Porges' studies, by which it had been revealed that the carbohydrate tolerance of diabetic patients can be increased by a diet deficient in fat but comparatively rich in carbohydrates, Czoniczer and Kolta tried to duplicate these results; but they wanted also to determine to what factor the efficacy of this diet can be ascribed. They doubt Porges' assertion that the increased tolerance is primarily due to the fat deficiency of the diet. Their first observations convinced them that the increased tolerance is mainly due to the low number of calories and the comparatively high carbohydrate intake. After that they tried to determine how the tolerance of the diabetic patients is influenced by the excessive carbohydrate intake. The solution of this problem seemed important, because it is generally believed that the carbohydrate intake which exceeds the limits of tolerance exacerbates the patient's condition. The authors made their observations on fifteen patients in whom the diabetes was either slight or of medium severity. In severe cases, in which there exists complete pancreatic insufficiency, a favorable influence of an excessive carbohydrate content was not to be expected, and since one experiment in this direction corroborated this assumption, other severe cases were excluded from the further tests. In the mild and medium severe cases it was noted that, in the first few days of excessive carbohydrate intake, the sugar elimination increased. The maximum was usually reached after two or three days, and then it decreased gradually to the level at which it was before excessive amounts were given. The increase in tolerance varied between 20 and 80 Gm. of carbohydrates. On the basis of these observations, the authors conclude that the ingestion of carbohydrate not only consumes insulin but also has a stimulating effect on its secretion.

Monatsschrift für Kinderheilkunde, Berlin

53: 153-300 (April 29) 1932

*Studies on Acid-Base Economy in Children: Oral Administration of Acid and Basic Substances. H. Forschner-Böke and A. and G. Hottinger.—p. 153.
Tests on Results of Climatic and Brine Bath Cures in Children. R. Niemeyer.—p. 174.
Fetal Meconium Peritonitis Caused by Spontaneous Perforation of Intestine. M. Jachens.—p. 188.
Beginning and End of Chorea Minor in Children Demonstrated on Changes in Handwriting. P. Karger.—p. 197.
*Thrombopenic Purpura Following Smallpox Vaccination. Annemarie Dormann.—p. 204.
Melena Neonatorum: Case. Alice Leffkowitz.—p. 209.
Aleukemic Myelosis in Nursling, Aged 11 Months. T. Varga.—p. 211.
Alimentary Hematuria During Childhood. K. Ochsenius.—p. 217.
Gastric Hemorrhages in Typhoid During Childhood. P. G. Eiwin.—p. 220.
*Toxin and Antitoxin Content of Spinal Fluid in Postdiphtheritic Paralysis. R. Quest.—p. 225.
Behavior of Irritability of Peripheral Nerves in Course of Postdiphtheritic Paralysis. R. Quest.—p. 229.
Suppurative Meningitis During Early Nursling Age. E. Stransky.—p. 235.
So-Called Habitual Vomiting in Children. W. Mikulowski.—p. 242.
Calcium Therapy in Infants and Young Children. Anne Rehmann.—p. 245.
Measurement of Length of Thorax and of Abdomen in Nurslings and Their Relations to General Growth. I. Hilmi.—p. 250.
Behavior of Oxyuris Toward Alizarin. A. Bauer.—p. 254.

Studies on Acid-Base Economy in Children.—Forschner-Böke and the Hottingers studied the acid-base economy in children following oral administration of acid and basic substances. 1. They found that after oral administration of sodium bicarbonate the elimination of organic acids is considerably increased. However, this increase is not due to an increased elimination of ether soluble fatty acids. The elimination of amino-acids is strongly and that of uric acid and of creatine is slightly increased. Between the elimination of amino-acids and of ammonia there seems to exist an interrelation. It is particularly phosphoric acid that is used for maintaining the acid-base equilibrium. The ammonia content of the urine is usually decreased. 2. When large quantities of mineral acids are fed to nurslings, the general metabolism is only secondarily affected. The neutralization takes place primarily in the intestine, and during this process water and bases are withdrawn from the organism. 3. Oral administration of oxyisobutyric acid increases considerably the elimination of organic acids in the urine. The quantity of the ether soluble fatty acids, as well as of the amino-acids, is increased. The elimination of organic acids exceeds the intake of organic acids considerably. 4. During prolonged feeding with lactic acid the organism decomposes the administered organic acid to such an

extent that an increased elimination of lactic acid cannot be observed. When lactic acid is given for only a short period to older children, the following results are obtained: The elimination of organic acids is considerably increased. The lactic acid content of the urine indicates that the increased elimination of organic acids is only partially due to unchanged excreted lactic acid. The increased elimination of amino-acids likewise indicates that the greater excretion of organic acids is the result of changes in the intermediate metabolism.

Thrombopenic Purpura Following Smallpox Vaccination.—Dormann relates the clinical history of a child, aged 7 months, who from the sixth to the seventh day following smallpox vaccination developed signs of a purpura. Clinically it was characterized by hemorrhages from the skin and from the mucous membranes and hematologically by thrombopenia. The manifestations disappeared within three days without a therapeutic intervention. The author further reviews two similar cases from the literature and she thinks that a connection between the thrombopenic purpura and the smallpox vaccination can hardly be doubted. However, it cannot be definitely decided whether the vaccination caused the purpura or only led to its manifestation. The rarity of its development in the large number of vaccinations seems to indicate that an endogenous factor is involved. Whether this factor will manifest itself only in a single attack or whether later an essential thrombopenia will develop can be determined only by further observation of such patients.

Toxin and Antitoxin Content of Spinal Fluid in Postdiphtheritic Paralysis.—Quest points out that diphtheria toxin has a special affinity for the nervous substance and he thinks that the postdiphtheritic paralysis which develops between the second and sixth week of the disease is a manifestation of this affinity. The paralysis (really more of a paresis) involves primarily the soft palate, the muscles of the eye and the muscles of the lower extremity; more rarely there is paralysis also of the facialis, of the muscles of pharynx and larynx, and only in exceptional cases the respiratory muscles, particularly those of the diaphragm are involved. A review of the literature on the changes in the spinal fluid during diphtheria revealed that diphtheria toxin and antitoxin have never been detected. The author thinks that the absence of the toxin might be due to the fact that it is bound to the nerve cells; however, the absence of antitoxin was the more surprising, since antitoxin was always found in the blood. He then relates the results of his own studies on nine children with severe manifestations of postdiphtheritic paralysis. Tests for the presence of toxin and antitoxin in the spinal fluid always gave negative results.

Zeitschrift f. Geburtshülfe u. Gynäkologie, Stuttgart

102: 1-232 (May 20) 1932

Protein Chemistry of Vaginal Secretion. L. Nürnberger.—p. 1.
Sulphur Content of Vaginal Secretion. L. Nürnberger.—p. 12.
Gas Content of Blood of Umbilical Cord Before and After Birth of Child: Gas Exchange in Placenta. G. Haselhorst and K. Stromberger. —p. 16.
*Ovary and Endometrium in Patients with Myoma. P. Häggström.—p. 36.
Clinical Aspects and Genesis of Endometriosis: Adenomyosis of Round Ligament Before and After Its Displacement into Abdominal Wall. G. Haselhorst.—p. 104.
Value of Manoiloff's Pregnancy Reaction. Z. von Szathmáry.—p. 112.
Measurement of Occipitofrontal Diameter of Fetal Head. S. Kasamori. —p. 121.
Spreading of Tuberculosis in Uterus. J. Grünstein.—p. 128.
Difficulty in Differentiating Between Tumor of Hepatic Flexure and Tumor of Uterine Adnexa. P. G. Plenz.—p. 137.
Prospects of Further Development of Technic of Roentgenologic Examination of Pregnancy and of Pelvis. F. A. Wahl.—p. 142.
Pathogenic Significance of Trichomonas Vaginalis. M. Rodecourt.—p. 151.

Ovary and Endometrium in Patients with Myoma.—Häggström's investigations were made on the ovaries and the endometrium of fifty-six patients with myoma. In regard to the size of the ovaries he states that in twenty-eight, that is, in exactly 50 per cent of his patients, the ovaries were of normal size. In eleven of the remaining twenty-eight, one ovary was of normal size. In seventeen cases, both ovaries were larger than normal. In general the size of the myoma exerts only a slight influence on the size of the ovaries, for normal as well as enlarged ovaries are found during existence of small and of large myomas. The consistency and the position of the myoma has no influence on the weight of the ovaries. In counting the follicles it was found that in younger women they were more numerous than in older women. The corpora lutea of the patients with myoma did not differ from those in normal ovaries, and thus the author cannot corroborate the opinion expressed by some investigators that they are especially large. Corpora albicantia were found in all instances and in the majority of cases they were numerous. The latter fact, which by some is considered as a characteristic of the ovaries of myoma patients, the author considers a natural result of the advanced age of these patients. Ovarian hemorrhages were present in thirty-six of the fifty-six patients and were found most frequently in myomas of medium size. Cystic degeneration was noted in nearly half of the ovaries. In thirty patients the ovaries showed signs of an existing or of a former inflammation. These signs of inflammation were more frequent in cases of larger than in smaller myomas. In seven instances small fibromas were found on the surface of the ovaries, but these fibromas do not seem to have an influence on the hemorrhages in the myomas. Observations on the hyalinization of the ovarian vessels convinced the author that the degree of hyalinization is more closely connected with the age of the woman, with the number of confinements or with both of these factors than with the myomas. The endometrium was examined in fifty-four of the fifty-six patients. In twenty-three instances it was entirely normal. In twenty-one cases the mucous membrane was atrophied, and hypertrophy was noted in only four instances. A change, characteristic for myoma, could not be detected in the uterine mucosa. Observations on fifteen sterile women of the author's material indicate that, as the size of the myoma increases, the greater is the likelihood of sterility. The position of the myoma appears to exert no influence on the sterility.

Zeitschrift für klinische Medizin, Berlin

120: 249-516 (May 4) 1932. Partial Index

*Metabolic Action of Inhalation of Pure Oxygen. P. Bielschowsky and S. Thaddea.—p. 330.
*Arsphenamine and Bilirubin Content of Blood. O. Satke and K. Thums. —p. 386.

Metabolic Action of Inhalation of Pure Oxygen.—Bielschowsky and Thaddea examined first the influence of inhalation of oxygen on the ketone bodies in the blood and on the acid-base equilibrium. They found that it effects a decrease in the ketone body content of the blood of patients with increased ketone body content. It also increases the alkali reserve and causes changes in the hydrogen ion concentration toward the alkaline side, particularly by a decrease in the alveolar carbon dioxide tension. The authors also examined the influence of oxygen inhalation on the lactic acid content of the blood following intravenous tolerance tests with a 20 per cent solution of sodium lactate. These tests were made first on dogs and then on human subjects, and it was found that when the tolerance test was combined with oxygen inhalation the curve indicating the lactic acid content was considerably lower than when only air was breathed. In order to determine the influence of oxygen inhalation on the lactic acid content without the tolerance test, epinephrine was administered, which ordinarily produces a considerable increase in the lactic acid content in the blood. It was again found that when oxygen was inhaled the lactic acid curve was considerably lower than when only air was breathed. The authors then discuss the action mechanism of the oxygen inhalation but reach no definite conclusions.

Arsphenamine and Bilirubin Content of Blood.—Satke and Thums direct attention to the fact that liver disturbances, particularly icterus, frequently develop following antisyphilitic treatment with arsphenamine. Because the opinions are still divided as to whether the disturbance of the liver is due to syphilis or to the treatment, the authors studied the modification of the bilirubin content produced by administration of arsphenamine. After mentioning a number of investigators who have studied this problem from various angles, the authors describe their own tests. They noted that arsphenamine influences the bilirubin content of the serum in more than 50 per cent of the cases. In one fourth of these abnormally reacting cases the bilirubin content is increased, whereas in the other three

fourths of the cases it is decreased. This behavior was seen in cases with an originally normal bilirubin content as well as in cases with a bilirubin content that was increased before administration of the arsphenamine. In order to determine whether the arsphenamine effect was influenced by the size of the dose or by a disturbance in the liver function, the arsphenamine was given in smaller and in larger doses (but never in excess of 0.45 Gm. of neoarsphenamine), and the liver function was tested by the galactose test. However, neither of these two factors were found to be of influence.

Zentralblatt für Gynäkologie, Leipzig

56: 1329-1376 (May 28) 1932

*Treatment of Genital Hemorrhages with Corpus Luteum Hormone. C. Kaufmann and L. Bickel.—p. 1329.
Results of Obstetric Trauma on Pelvis of Mother. E. Philipp.—p. 1346.
Treatment of Asphyxia in the New-Born. E. Burghard.—p. 1350.
Experiences with Belladonna Suppositories. W. F. Rothhammer.—p. 1351.
Simplification of Aschheim-Zondek Reaction by Friedmann's Rabbit Test. E. Parache.—p. 1353.
Prophylactic and Therapeutic Significance of Calcium in Obstetrics and Gynecology. J. Malfatti.—p. 1358.

Treatment of Genital Hemorrhages with Corpus Luteum Hormone.—The physiologic function of the corpus luteum consists, according to Kaufmann and Bickel, in the protection of the ovum and of its site of attachment, the mucous membrane, which it prevents from disintegration and from subsequent hemorrhage. The fact that the corpus luteum hormone inhibits hemorrhage seems to justify its use in the treatment of gynecologic hemorrhages. Accordingly, the authors employed it in sixteen cases of severe uterine hemorrhages. In the majority of these cases, other therapeutic methods had been used without avail. In twelve of the patients the hemostatic effect became noticeable from seven to eight hours after the first injection, but hemorrhage generally recurred from twelve to sixteen hours later and did not disappear again until several additional injections had been given. However, more important than the immediate effect the authors consider the regulating influence on the menstruation. In three of seven women the cycle became almost normal, whereas in three the intervals as well as the duration remained irregular. In the other patient it was regular with only one menstruation of prolonged duration. Three women who were in the premenopausal age, and who had hyperplasia of the uterine mucous membrane, were observed for several months following the corpus luteum therapy, and in these cases clinical cure was effected. The treatment proved likewise helpful in a girl, aged 17, who for a year had almost continuous hemorrhages with rare intermissions. In this case other therapeutic measures had been employed without avail, but after corpus luteum treatment the cycles became regular. Four women discontinued the treatment early, before results were obtained, but in spite of the comparatively small number of cases the authors feel justified in calling attention to the possibilities of treatment with corpus luteum hormone.

Sovetskaya Vrachebnaya Gazeta, Leningrad

April 15, 1932, number 7, pp. 389-448

Multiplication of Bacteria in Cultures. O. O. Gartokh and M. I. Kanevskaya.—p. 393.
Study of Methods for Preparing Bacterial Vaccines. M. I. Kanevskaya, M. A. Zelikina, E. T. Pavlova, S. M. Ostrovskaya.—p. 400.
Fighting Colds in Red Army. Ya. D. Polyak and V. Kh. Chireikin.—p. 403.
Clinical Course of Pulmonary Tuberculosis in Patients with Cardiac Disturbances. I. O. Krijevskiy.—p. 407.
*Atropine in Treatment of Pulmonary Hemorrhage and Bloody Expectoration. K. A. Trofimov.—p. 411.
Methylthionine Chloride in Treatment of Various Dermatoses. E. L. Krom.—p. 416.
Multiple Croupous Pneumonia. N. E. Kushev.—p. 420.
Problems of Medicolegal Expert. N. V. Popov.—p. 424.
Public Health in Stalingrad Tractor Plant. I. L. Glezer.—p. 441.

Atropine in Treatment of Pulmonary Hemorrhage.—Trofimov gave subcutaneous injections of 1 mg. (ten instances) and 0.5 mg. (one instance) of atropine sulphate and found that atropine increases the circulation of the peripheral system and causes a rise in the skin temperature; there is an increase in the circulation of blood in the greater circulation concomitant with a decrease in the lesser circulation. These observations prompted him to use atropine in the treatment of pulmonary hemorrhage and hemoptysis. In six of ten patients, from one to three injections were sufficient to stop the hemorrhage; in two patients, complete cessation of the hemorrhage was possible only after prolonged treatment; and in two other patients the treatment was without effect. Atropine was effective in doses of 0.5 mg. or less; when the pulmonary hemorrhage was profuse, treatment was begun with doses of 1 mg., followed after three hours with 0.5 mg. and after five hours, again, with 0.5 mg.; when the hemoptysis was moderate, the dosage was 0.5 or 1 mg. twice a day. Atropine is contraindicated in gastro-intestinal hemorrhage. The best results are obtained in hemorrhage during a freshly induced artificial pneumothorax. Atropine is indicated in hemorrhage from an aneurysm and previous to the induction of an artificial pneumothorax. The action of atropine is greatest in vagotonia and least in sympathicotonia.

Finska Läkaresällskapets Handlingar, Helsingfors

74: 337-411 (April) 1932

Atmospheric Influences (Noso-Aerial Factors) and Incidence of Scarlet Fever. H. von Willebrand.—p. 337.
*So-Called Spontaneous Panophthalmia. O. Heinonen.—p. 360.

So-Called Spontaneous Panophthalmia.—Heinonen reports that in a woman, aged 30, with a severe cold, a comparatively slight, transient pneumococcus infection occurred; at the same time menstruation set in. On the second day, when the fever was receding, a metastatic retinitis appeared and in a few days panophthalmia developed. Evisceration of the eye was followed by uneventful recovery. Microscopic examination of the exudate showed pneumococci in pure culture. The author thinks the portal of entrance for the pneumococcic infection in the blood was the upper respiratory passages, with the premenstrual constriction of the capillaries probably a disposing factor for the appearance of the infectious embolus in the retina.

Ugeskrift for Læger, Copenhagen

94: 481-500 (May 12) 1932

Position in Schäfer's Artificial Respiration. E. von Holstein-Rathlou.—p. 481.
*Treatment of Parathyroprival Tetany with Calcium Chloride, Parathyroid Hormone and Vitamin D. P. Schultzer.—p. 485.
Temperature of Spinal Fluid. J. Foged.—p. 489.
Phenobarbital Preparations as Means of Suicide. H. I. Schou.—p. 492. Id. C. Clemmesen.—p. 493.

Treatment of Parathyroprival Tetany with Calcium Chloride, Parathyroid Hormone, and Vitamin D.—In parathyroprival tetany Schultzer advises immediate injections of parathyroid hormone with simultaneous administration of calcium chloride and vitamin D. As soon as the blood calcium rises to normal it can be maintained by the intake of calcium chloride and vitamin D. The importance of the regular use of calcium chloride in particular should be impressed on the patient.

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Thomas Sydenham, English Hippocrates, and Disease Interpreter of Renaissance. K. Faber.—p. 501.
*Pancreatitis as Complication in Epidemic Mumps. E. Sylvest.—p. 508.
*Acute Infectious Disease of Central Nervous System: Cases. H. Schmedes.—p. 514.

Pancreatitis as Complication in Epidemic Mumps.—Sylvest says that pancreatitis may occur directly after the onset of the mumps or later in the course of the disease and is manifested by fever, nausea, vomiting, disturbance in intestinal function, pain and tenderness in the cardia; there is occasionally a palpable tumor with location corresponding to the seat of the pancreas, and the fasting blood sugar values are usually increased. As a rule the disorder is of brief duration, but it may extend over several weeks.

Acute Infectious Disease of Central Nervous System. Schmedes reports seven cases, observed during January in one family, of an acute febrile condition of the central nervous system, partly of definitely infectious character. The cases were polymorphic in kind but were diagnosed as acute anterior poliomyelitis. Poliomyelitis, the author says, rarely occurs in the district in question, and there were no other cases in the immediate vicinity; careful investigation failed to reveal the source of infection. Four additional cases are reported which were also seen in the same month, at a considerable distance from the other cases.